TOWN OF NORTON, MASSACHUSETTS

ELM STREET SEWER EXTENSION & WATER MAIN IMPROVEMENTS PROJECT

SEWER DEPARTMENT: 166 JOHN SCOTT BOULEVARD, NORTON, MA 02766

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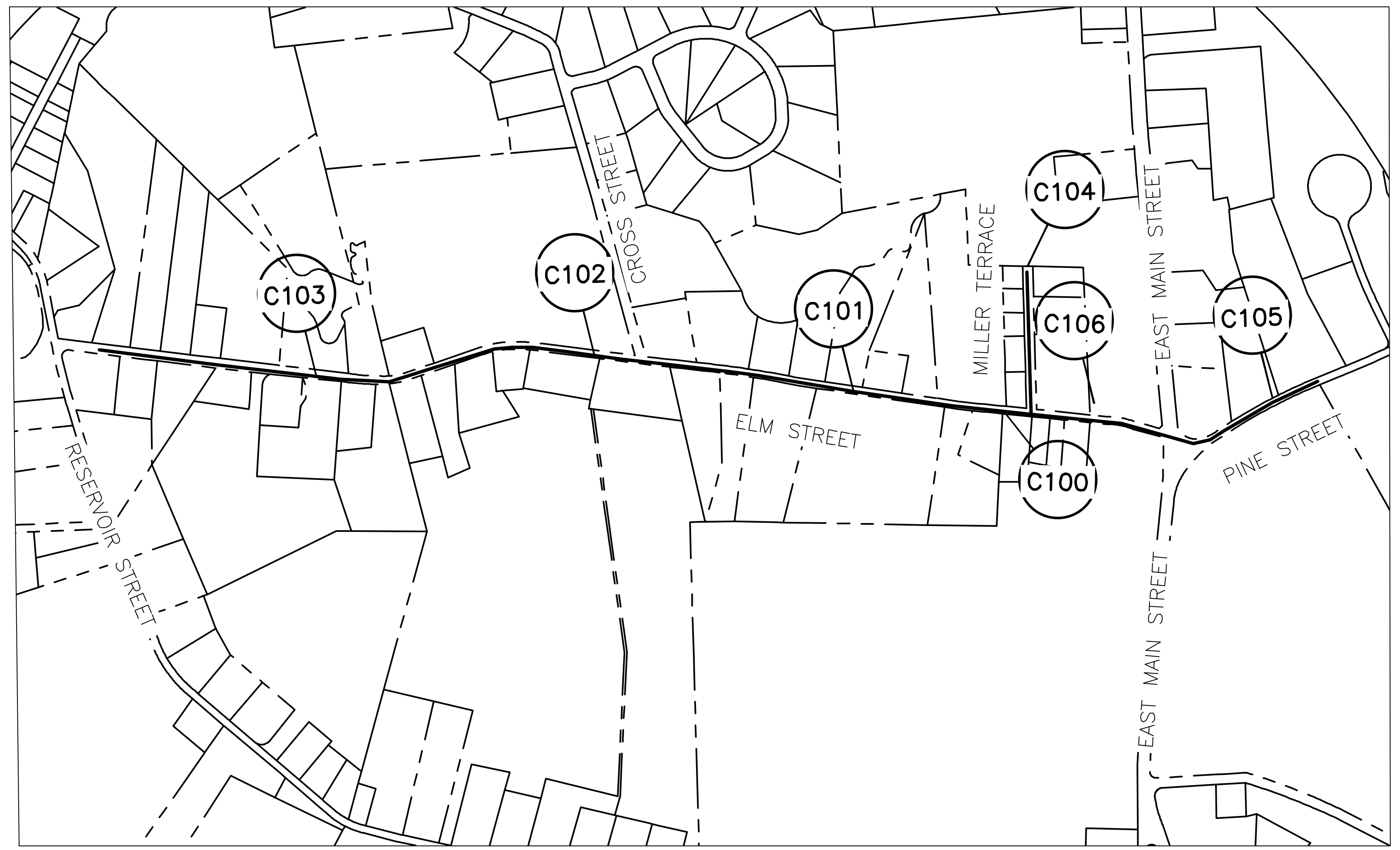
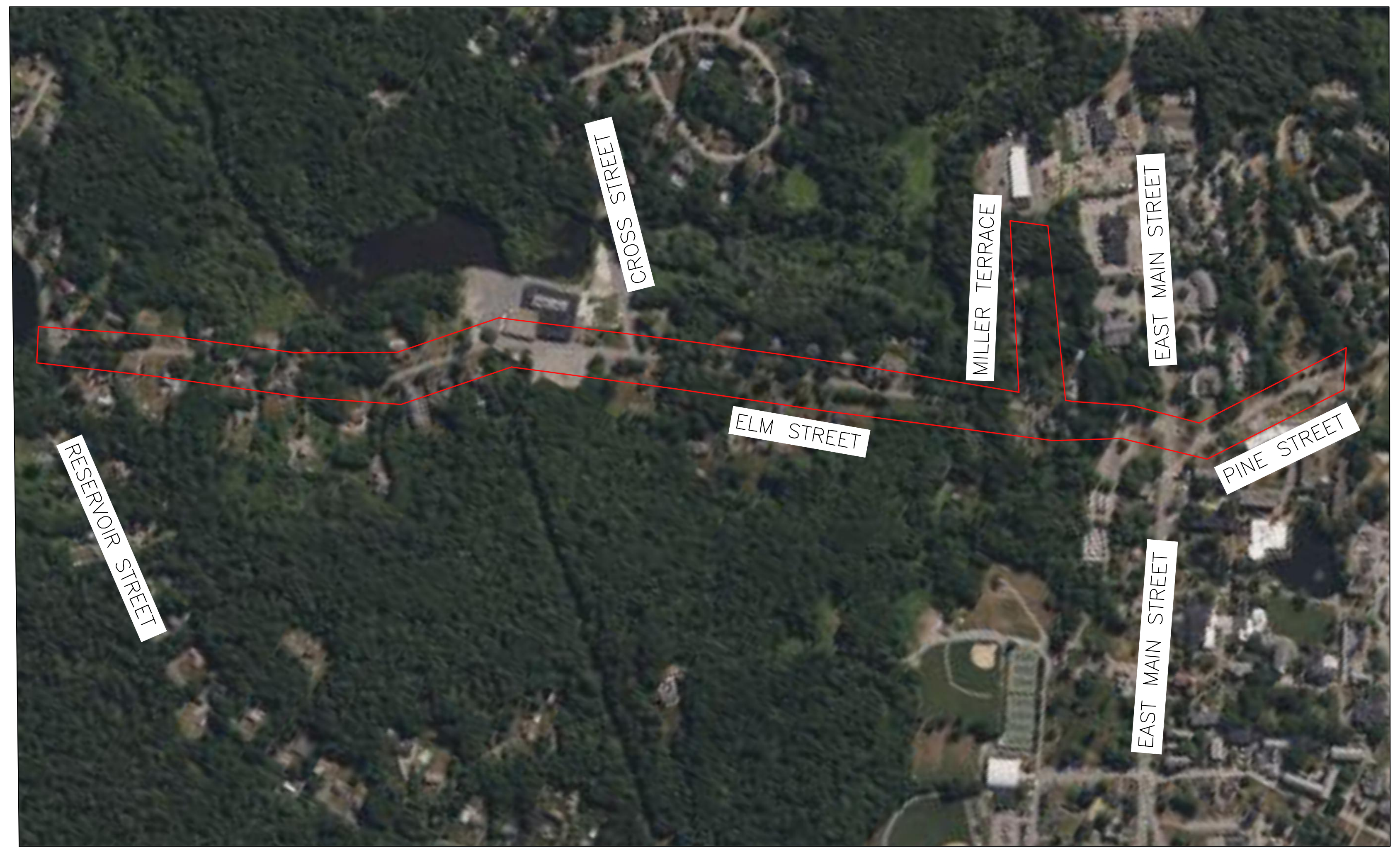


LOCATION MAP

SCALE: 1" = 1,500'



VICINITY MAP

SCALE: 1" = 1,500'

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Issued Date:

SEPTEMBER 2024

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Issued For:

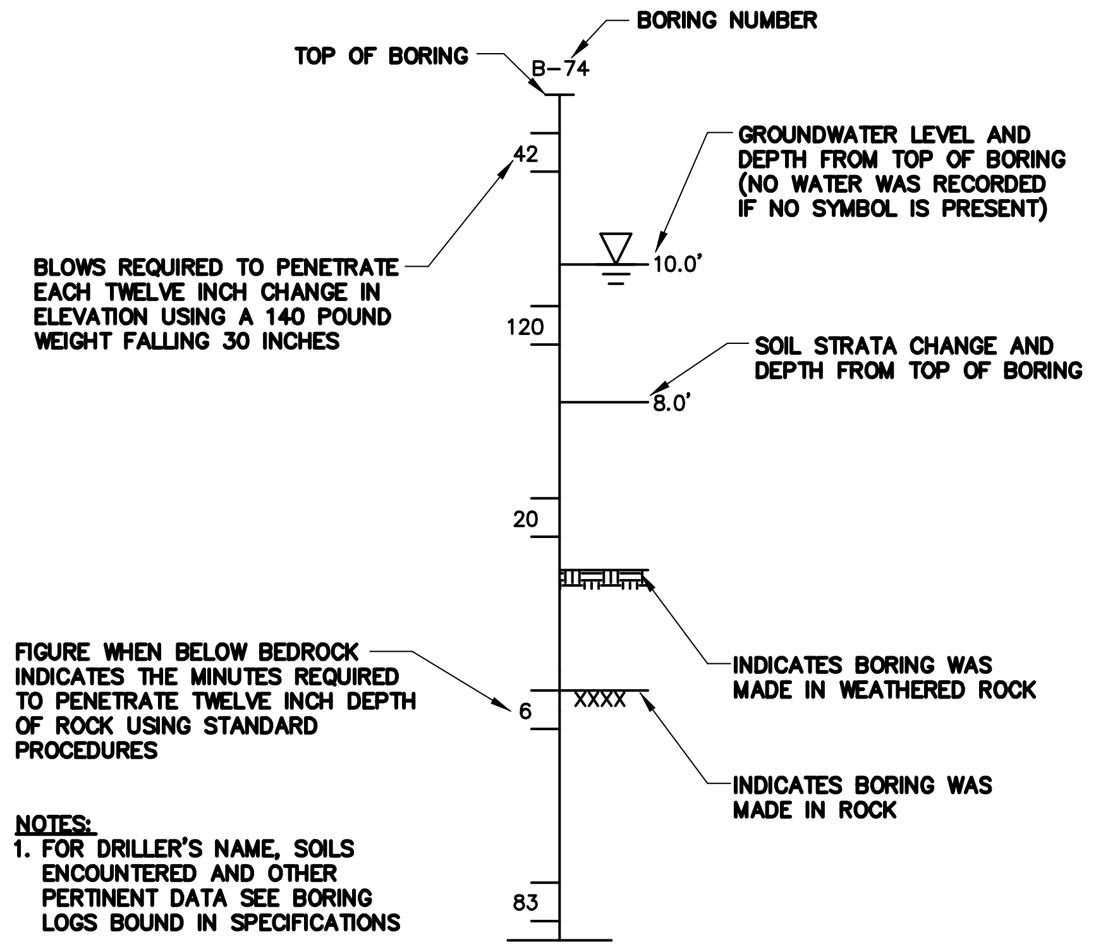
BIDDING

LEGEND

DESCRIPTION	EXISTING	PROPOSED
SANITARY SEWER	—— S ——	—8"S PVC—
FORCE MAIN	– – – –FM– – – –	––6"FM DI––
WATER MAIN	—— W ——	——6"W DI——
TEMPORARY WATER		––– 4"W –––
STORM DRAIN	—— D ——	—18"D RCP—
GAS	—— G ——	——4"G——
ELECTRIC	—— E ——	——E——
TELEPHONE	—— T ——	——T——
HOUSE CONNECTION		6" HOUSE CONN (TYP)
GRINDER PUMP	Ⓖ	⬢ GP
SANITARY SEWER MANHOLE	Ⓢ	● SMH
STORM DRAIN MANHOLE	Ⓓ	● SDMH
ELECTRICAL MANHOLE	Ⓔ	● EMH
TELEPHONE MANHOLE	Ⓣ	● TMH
AIR RELEASE VALVE MANHOLE	Ⓐ	● ARMH
FORCE MAIN CLEANOUT MANHOLE	Ⓢ	● FMCO
CLEANOUT	○	• CO
CATCH BASIN	□	■ CB
CATCH BASIN (CURB INLET)	▥	
HYDRANT	☼	-●-
TEMPORARY HYDRANT		Ⓗ
GATE VALVE	WV ⋈	⋈
CHECK VALVE	|↗|	|↗|
CURB STOP	○	⋈
BUTTERFLY VALVE	⋈	⋈
BALL VALVE	⋈	⋈
REDUCER	◁	◀
CAP OR PLUG	⊓	⊓
GAS GATE VALVE	GV ⋈	
UTILITY POLE	○	-●-
GUY POLE	◑	
LIGHT POST	☼	
EDGE OF PAVEMENT	———	━━━
EDGE OF UNPAVED ROAD	— — — —	━ ━ ━ ━
CURB	═══	═══
SIDEWALK	═══	═══
RAILROAD	┼┼┼┼┼┼┼	
STONE WALL	∞∞∞∞∞∞	∞∞∞∞∞∞
RETAINING WALL	RET WALL	RET WALL
FENCE	—x—x—	—x—x—
INDIVIDUAL DECIDUOUS TREE	✿	✿
INDIVIDUAL EVERGREEN TREE	✳	✳
TREE LINE	⌒⌒⌒⌒⌒	⌒⌒⌒⌒⌒
SURVEY MARKER	⊡	
PROPERTY LINE	—— -PL- ——	
EASEMENT LINE	— — — — —	━ ━ ━ ━ ━
LIMIT OF WORK		━ · ━ · ━ · ━
APPROX. LIMIT OF REFUSE	━━ ━ ━━	
SPOT ELEVATIONS	x 141.5	x141.5
CONTOUR LINES	——56——	——56——
DEPRESSION CONTOUR LINES	┬┬┬┬	┬┬┬┬
HOUSE NUMBER	#35	
FLOOR ELEVATION	FL=56.7	
SILL ELEVATION	S=56.7	
WETLAND	⊥ . . ⊥ . . ⊥	
WETLAND FLAGS		—•1— —•2—
RIP RAP	⬡⬡⬡⬡⬡	⬡⬡⬡⬡⬡
STATE HIGHWAY STATION	⊙	
SURFACE MOUNTED DELINEATOR		⌀
GUARD POST	△	▲
BOLLARD	○ B	● B
SIGN	-o-	
BENCH MARK	⊕	
AUGER	⊕ A–1	⊕ A–1
PERCOLATION TEST	PT 1	PT–1
TEST PIT	TP 1	TP–1
BORING	B–10	B–11
PROBE	P–10	P–11
GROUNDWATER MONITORING WELL	⊕ WS–1	⊕ WS–1
GAS MONITORING WELL	GMW–10	GMW–10
GAS VENT	⬡ GV	⬢ GV
HAY BALES		⊡⊡⊡⊡
ROCK OUTCROP	▦	
100 FOOT WETLAND BUFFER	—— · ——	

ABBREVIATIONS

AC	ASBESTOS CEMENT PIPE
ACCMP	ASPHALT COATED CORRUGATED METAL PIPE
ARV	AIR RELEASE VALVE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BC	BITUMINOUS CONCRETE
BIT	BITUMINOUS
BLDG	BUILDING
BM	BENCH MARK
BO	BLOW OFF
BV	BUTTERFLY VALVE
CATV	CABLE TELEVISION
CB	CATCH BASIN
CC	CONCRETE CURB
CI	CAST IRON
℄	CENTERLINE
CL	CEMENT LINED
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CU FT	CUBIC FEET
CY	CUBIC YARD
D	STORM DRAIN, DEPTH FROM RIM TO INVERT
DI	DROP INLET, DUCTILE IRON
DIA	DIAMETER
DMH	DRAIN MANHOLE
DWG	DRAWING
E	EAST, ELECTRIC
EA	EACH
EF	EACH FACE
ELEV	ELEVATION
EOP	EDGE OF PAVEMENT
EW	EACH WAY
EXIST	EXISTING
FLG	FLANGE
FT	FEET, FOOT
G	NATURAL GAS
GALV	GALVANIZED
GC	GRANITE CURB
GR	GRANITE
HC	HOUSE CONNECTION
HORIZ	HORIZONTAL
HP	HIGH PRESSURE
HYD	FIRE HYDRANT
I	INVERT
INV	INVERT
ID	INSIDE DIAMETER
IP	IRON PIPE
LB	POUND
LF	LINEAR FEET
LS	LUMP SUM
MAX	MAXIMUM
MB	MAIL BOX
MDC	METROPOLITAN DISTRICT COMMISSION
MDPW	MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS
MECH	MECHANICAL
MH	MANHOLE
MassDOT	MASSACHUSETTS DEPARTMENT OF TRANSPORTAION
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MWRA	MASSACHUSETTS WATER RESOURCES AUTHORITY
N	NORTH
NE	NORTH EAST
NW	NORTH WEST
NF	NOT FOUND
NO OR #	NUMBER
OD	OUTSIDE DIAMETER
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PE	PLAIN END, POLYETHYLENE
PL (℄)	PROPERTY LINE
PL	PLATE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT–OF–WAY
RQD	ROCK QUALITY
S	SEWER, SOUTH
SE	SOUTH EAST
SECT	SECTION
SF	SQUARE FEET
SHT	SHEET
SPEC	SPECIFICATIONS
SQ FT	SQUARE FEET
SS	SEWER SERVICE, STAINLESS STEEL
STA	STATION
STL	STEEL
SW	SIDEWALK, SOUTH WEST
T	HYDROSTATIC THRUST, TELEPHONE
TBM	TEMPORARY BENCH MARK
THK	THICK (NESS)
TYP	TYPICAL
UP	UTILITY POLE
VC	VITRIFIED CLAY
VERT	VERTICAL
W	WATER, WEST
W/	WITH
W/O	WITHOUT


BORING NUMBER
TOP OF BORING
B–74
42
GROUNDWATER LEVEL AND DEPTH FROM TOP OF BORING (NO WATER WAS RECORDED IF NO SYMBOL IS PRESENT)
10.0'
BLOWS REQUIRED TO PENETRATE EACH TWELVE INCH CHANGE IN ELEVATION USING A 140 POUND WEIGHT FALLING 30 INCHES
120
SOIL STRATA CHANGE AND DEPTH FROM TOP OF BORING
8.0'
20
INDICATES BORING WAS MADE IN WEATHERED ROCK
FIGURE WHEN BELOW BEDROCK INDICATES THE MINUTES REQUIRED TO PENETRATE TWELVE INCH DEPTH OF ROCK USING STANDARD PROCEDURES
6
XXXX
INDICATES BORING WAS MADE IN ROCK
83
BOTTOM 22.0'
INDICATES DEPTH OF BORING

NOTES:

1. FOR DRILLER'S NAME, SOILS ENCOUNTERED AND OTHER PERTINENT DATA SEE BORING LOGS BOUND IN SPECIFICATIONS
2. REFUSALS (WHEN RECORDED) ARE SHOWN ON THE BORING LOG. SEE BORING LOG FOR REFUSAL TYPE.

BORING LOG LEGEND

N.T.S.

CONSTRUCTION NOTES:

1. UNDERGROUND UTILITY LOCATIONS SHOWN HEREON ARE BASED ON UTILITY EVIDENCE VISIBLE AT GROUND SURFACE AND RECORD DRAWINGS AND ARE SUBJECT TO FIELD VERIFICATION BY EXCAVATION. UTILITIES SHOWN DO NOT PURPORT TO CONSTITUTE OR REPRESENT ALL UTILITIES LOCATED UPON OR ADJACENT TO THE SURVEYED PREMISES.

2. THE CONTRACTOR SHALL CALL DIGSAFE AT 1–888–344–7233 AT LEAST 72 HOURS, SATURDAYS, SUNDAYS, AND HOLIDAYS EXCLUDED, PRIOR TO EXCAVATING AT ANY LOCATION. A COPY OF THE DIGSAFE PROJECT REFERENCE NUMBER(S) SHALL BE GIVEN TO THE OWNER PRIOR TO EXCAVATION.

3. TEST PITS TO LOCATE EXISTING UTILITIES MAY BE ORDERED BY THE ENGINEER. ALL TEST PITS SHALL BE EXCAVATED PRIOR TO THE CONSTRUCTION LAYOUT AND RESULTS REPORTED TO THE ENGINEER FOR REVIEW AND CONFORMANCE TO THE PLANS. TEST PITS ARE REQUIRED WHERE SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. TEST PITS WILL BE DUG PRIOR TO CONNECTING PROPOSED SEWER, FORCE MAINS OR STRUCTURES. THE RESULTS OF THE TEST PITS DUG TO DETERMINE EXISTING SEWER ELEVATIONS AND LOCATIONS WILL BE REPORTED TO THE ENGINEER. ADJUSTMENTS TO INVERTS, LENGTHS AND SLOPES AS PROPOSED MAY BE REQUIRED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT OF ALL PROPOSED LINES AND STRUCTURES AS SHOWN ON THE DRAWINGS. THE LAYOUT PLAN SHALL BE REVIEWED BY THE ENGINEER PRIOR TO CONSTRUCTION. THE HORIZONTAL ALIGNMENT OF THE NEW SEWERS AND FORCE MAINS MAY BE ADJUSTED IN THE FIELD SUBJECT TO ENGINEER APPROVAL.

4. STONE WALLS, FENCES, MAIL BOXES, SIGNS, CURBS, LIGHT POLES, GUARD RAILS ETC. SHALL BE REMOVED AND REPLACED AS NECESSARY TO PERFORM THE WORK. UNLESS OTHERWISE INDICATED, ALL SUCH WORK SHALL BE INCIDENTAL TO CONSTRUCTION OF THE PROJECT. CONTRACTOR SHALL RESET OR REBUILD ANY ITEMS DAMAGED OR DISTURBED DURING CONSTRUCTION INCLUDING BUT NOT LIMITED TO WALKWAYS, STEPS, STONE WALLS, FENCING, GUARD RAILS, MAILBOXES, DRIVEWAYS, AND PLANTERS AT LEAST TO THEIR ORIGINAL CONDITION, TO THE SATISFACTION OF THE OWNER AND ENGINEER. WORK SHALL BE CONSIDERED INCIDENTAL.

5. ALL STRUCTURES, PIPELINES, UTILITY POLES, AND/OR GUARD RAILS LOCATED ADJACENT TO THE TRENCH EXCAVATION SHALL BE PROTECTED AND FIRMLY SUPPORTED BY THE CONTRACTOR UNTIL THE TRENCH IS BACKFILLED. INJURY TO ANY SUCH STRUCTURES USED BY, OR RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. ALL UTILITIES REQUIRING REPAIR, RELOCATION OR ADJUSTMENT AS A RESULT OF THE PROJECT SHALL BE COORDINATED THROUGH THE PERSPECTIVE UTILITY.

6. EXISTING SIGNS THAT ARE IMPACTED BY THIS PROJECT SHALL BE RESET IN ACCORDANCE WITH STATE AND LOCAL GUIDELINES.

7. ALL PAVEMENT DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN ACCORDANCE WITH THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS. PAVEMENT WORK WITHIN THE TOWN RIGHT–OF–WAY SHALL INCLUDE PERMANENT TRENCH PATCH INSTALLATION AND FULL WIDTH 2–INCH MILL AND OVERLAY. INITIAL PAVING SHALL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR THROUGHOUT THE PROJECT ON A DAILY BASIS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND SHIMMING THE INITIAL PAVEMENT AS NECESSARY TO ACCEPT THE FINAL PAVING COURSE. ANY PAVEMENT MARKINGS SHALL BE REPLACED IF REMOVED DURING CONSTRUCTION.

8. COMPACTION TESTS SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS. ANY SETTLEMENT OCCURRING WITHIN ONE YEAR OF THE PROJECT WILL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN EXPENSE.

9. CONTRACTOR SHALL REMOVE AND REPLACE, OR REPAIR, ALL CURBS, SIDEWALKS, PAVEMENT, AND OTHER ITEMS DAMAGED BY THEIR CONSTRUCTION ACTIVITIES TO THE SATISFACTION OF THE OWNER AND ENGINEER.

10. ALL AREAS DISTURBED BY THE CONTRACTOR BEYOND PAYMENT LIMITS SHALL BE RESTORED AT NO ADDITIONAL COST TO THE OWNER.

11. CONCRETE CRADLES OR ARCHES SHALL BE CONSTRUCTED WHERE SHOWN ON THE DRAWINGS OR WHERE REQUIRED BY THE ENGINEER. UNLESS OTHERWISE INDICATED, CONCRETE USED FOR PIPE ANCHOR BLOCKS, BACKING, PIPE CRADLES, ARCHES, AND FILL SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.

12. THE CONTRACTOR SHALL NOT STORE ANY APPARATUS, MATERIALS, SUPPLIES, OR EQUIPMENT ON DRAINAGE STRUCTURES OR WITHIN 100 FEET OF WETLANDS. THE LOCATION AND LIMITS OF ALL ON–SITE WORK AND STORAGE AREAS SHALL BE REVIEWED WITH, COORDINATED WITH, AND ACCEPTABLE TO THE OWNER AND ENGINEER. THE CONTRACTOR SHALL LIMIT HIS ACTIVITIES TO THESE AREAS.

13. APPROVED JOINT RESTRAINT METHODS SHALL BE PROVIDED FOR WATER MAINS WHERE ANY BENDS, TEES, PLUGS, OR WYES ARE INSTALLED. CONCRETE THRUST BLOCKS, ANCHOR BLOCKS AND TIE RODS MAY BE USED FOR 6–INCH AND 8–INCH PIPE WHERE JOINT RESTRAINT IS NOT FEASIBLE UPON APPROVAL OF THE ENGINEER. SEE TABLE 1 DETAIL FOR REQUIRED RESTRAINING LENGTHS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

14. NEW WATER MAINS AND SERVICES SHALL BE INSTALLED AT THE MINIMUM DEPTH FROM FINISH GRADE TO TOP OF PIPE AS SHOWN ON THE DRAWINGS. WHERE NECESSARY, NEW WATER MAINS SHALL BE INSTALLED AT A GREATER DEPTH TO CLEAR OBSTACLES SHOWN ON THE DRAWINGS AT NO ADDITIONAL COST TO THE OWNER. MINIMUM CLEARANCES TO UTILITIES, AS SHOWN ON THE DRAWINGS SHALL BE MAINTAINED.

15. EXISTING SERVICES SHALL NOT BE CONNECTED TO THE PROPOSED WATER MAIN UNTIL THAT MAIN HAS PASSED PRESSURE TEST AND DISINFECTION REQUIREMENTS.

16. EXISTING WATER MAINS OR SERVICES SHALL NOT BE ABANDONED WITHOUT THE APPROVAL OF THE OWNER. WATER SERVICE SHALL NOT BE INTERRUPTED MORE THAN 4 HOURS WITHOUT PRIOR APPROVAL OF THE OWNER.

17. ALL HYDRANTS REMOVED SHALL BE SALVAGED AND DELIVERED TO A LOCATION TO BE DETERMINED BY THE OWNER. SURFACE RESTORATION SHALL BE IN KIND UNLESS OTHERWISE NOTED.

18. ANY HYDRANT WHICH IS NOT IN SERVICE SHALL BE COVERED WITH A SECURELY FASTENED AND APPROVED BAG.

19. VALVE BOXES ON MAINS TO BE ABANDONED SHALL BE REMOVED BY THE CONTRACTOR AND DELIVERED TO A LOCATION TO BE DETERMINED BY THE OWNER. SURFACE RESTORATION SHALL BE IN KIND UNLESS OTHERWISE NOTED.

20. EXISTING WATER MAINS PARALLEL TO PROPOSED WATER MAINS SHALL BE ABANDONED. ALL SERVICE CONNECTIONS SHALL BE TRANSFERRED TO NEW WATER MAIN AS REQUIRED.

21. CONTRACTOR SHALL HANDLE, REMOVE AND PROPERLY DISPOSE OF EXISTING WATER MAIN WHEN THE EXISTING WATER MAIN IS WITHIN THE NEW WATER MAIN TRENCH. DISPOSAL OF EXISTING ASBESTOS CEMENT PIPE SHALL BE AS INDICATED IN SPECIFICATION SECTION 02111.

22. THE LOCATION OF PIPES, CAPS, REDUCERS, BENDS, AND OTHER FITTINGS AT POINTS OF CONNECTIONS TO EXISTING MAINS IS APPROXIMATE. CONTRACTOR SHALL DIG A TEST PIT AT EACH LOCATION TO DETERMINE THE DIAMETER AND MATERIAL OF THE EXISTING PIPE AND THE LOCATION OF THE TIE–IN POINT.

23. THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVES WHICH HOLD WATER IN THE SYSTEM. THE OWNER WILL, ON 72 HOURS NOTICE FROM THE CONTRACTOR, OPEN AND/OR CLOSE ANY VALVES REQUIRED FOR DRAINING OR ADMITTING WATER TO THE VARIOUS SECTIONS OF THE WATER MAINS. THE CONTRACTOR IS RESPONSIBLE TO NOTIFY IN WRITING 48 HOURS IN ADVANCE, ANY OCCUPANT THAT WILL BE WITHOUT WATER DUE TO A SHUTDOWN.

24. SOME WATER SERVICE CONNECTIONS MAY NOT BE SHOWN ON THE DRAWINGS. THE OWNER WILL MARK THE LOCATION OF SUCH CONNECTIONS, PROVIDED THE CONTRACTOR GIVES THE OWNER AT LEAST 72 HOURS ADVANCE NOTICE.

25. THE CONTRACTOR SHALL REPLACE ALL NON–COPPER (INCLUDING PLASTIC) WATER SERVICES FROM THE WATER MAIN TO THE PROPERTY LINE (OR TO BUILDING) WITH NEW COPPER PIPE, CORPORATION STOP, AND CURB STOP, AS REQUIRED. COORDINATE THIS WORK WITH THE WATER DEPARTMENT. EXISTING COPPER SERVICES SHALL BE TRANSFERRED TO NEW WATER MAIN WITH NEW CORPORATION AND APPROVED FITTINGS. THE CONTRACTOR WILL BE REQUIRED TO RESTORE ALL PRIVATE PROPERTY TO PRE–CONSTRUCTION CONDITIONS AT NO ADDITIONAL COST TO THE OWNER. ALL NEW WATER SERVICES SHALL BE THE SAME SIZE AS THE EXISTING WATER SERVICE, EXCEPT THAT NO SERVICE SHALL BE LESS THAN 1" DIAMETER. COORDINATE THIS WORK WITH THE WATER DEPARTMENT.

26. SEWER TRENCHES MAY BE EXCAVATED WIDER THAN THE 'LIMIT OF EXCAVATION AND PAYMENT FOR EARTH EXCAVATION' ABOVE THE 'LINE OF NARROW TRENCH LIMIT.' ANY SUCH ADDITIONAL EXCAVATION SHALL BE AT THE CONTRACTOR'S EXPENSE AND SHALL NOT BE MEASURED FOR PAYMENT.

27. BELOW THE 'LINE OF NARROW TRENCH LIMIT' THE TRENCH SHOULD NOT BE EXCAVATED BEYOND THE TRENCH WIDTH 'W'. IF MATERIAL IS LOOSENED OR REMOVED BEYOND THE ABOVE MENTIONED LIMITS, THE CONTRACTOR WILL BE REQUIRED TO PROVIDE CRUSHED STONE FOR THE FULL WIDTH OF THE TRENCH AT NO ADDITIONAL COST TO THE OWNER.

28. IN PAVED AREAS THE TOP OF THE MANHOLE COVER SHALL BE SET FLUSH WITH THE PAVED SURFACE. IN OTHER AREAS THE TOP OF THE COVER SHALL EXTEND 6 INCHES ABOVE FINISHED GRADE, OR AS SHOWN ON THE DRAWINGS, OR AS REQUIRED BY THE ENGINEER. WHERE PROPOSED STRUCTURES ARE LOCATED PARTLY WITHIN A PAVED AREA AND NON–PAVED AREA, A BITUMINOUS CONCRETE PAVED APRON, 2–FEET WIDE SHALL BE SUPPLIED AROUND THE PROPOSED COVER. PAVEMENT SHALL SLOPE AWAY FROM THE COVER. IN AREAS OF TOP COURSE PAVING, EXISTING MUNICIPALLY–OWNED CATCH BASIN AND MANHOLE CASTINGS AND VALVE BOXES SHALL BE RAISED TO THE PROPER GRADE WHERE REQUIRED BY THE ENGINEER.

29. PROTECTION OF WATER SUPPLIES – WHENEVER A SEWER MUST CROSS UNDER A WATER MAIN, THE SEWER SHALL BE LAID AT SUCH AN ELEVATION THAT THE TOP OF THE SEWER IS AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN. WHEN THE ELEVATION OF THE SEWER CANNOT BE VARIED TO MEET THE ABOVE REQUIREMENT, THE WATER MAIN, GRAVITY SEWER AND/OR FORCE MAIN PIPE SHALL BE POLYETHYLENE ENCASED. THE SEWER CONSTRUCTED OF THE PRESSURE PIPE MUST BE PRESSURE TESTED TO ASSURE WATER TIGHTNESS.

30. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF MASSACHUSETTS GENERAL LAW CHAPTER 82A, TRENCH EXCAVATION AND SAFETY REQUIREMENTS, TO PREVENT THE GENERAL PUBLIC FROM UNAUTHORIZED ACCESS TO UNATTENDED TRENCHES.

31. POWER/UTILITY POLES MAY NEED TO BE SUPPORTED WITH POLE SUPPORTING DEVICES AT VARIOUS LOCATIONS. CONTRACTOR SHALL CONTACT THE APPROPRIATE ELECTRIC/POWER COMPANY 10 DAYS PRIOR TO NEEDING SUCH SUPPORTS, AT NO ADDITIONAL COST TO THE OWNER.

32. APPROVED JOINT RESTRAINT METHODS SHALL BE PROVIDED FOR FORCE MAINS WHERE ANY BENDS, TEES, PLUGS, OR WYES ARE INSTALLED. CONCRETE THRUST BLOCKS, ANCHOR BLOCKS AND TIE RODS MAY BE USED FOR 6–INCH AND 8–INCH PIPE WHERE JOINT RESTRAINT IS NOT FEASIBLE. FOR THRUST BLOCK DETAILS AND MINIMUM BLOCK BEARING AREAS, SEE DETAILS AND SPECIFICATIONS.

33. FOUR FOOT INSIDE DIAMETER MANHOLES SHALL BE USED WITH SEWERS LESS THAN 24 INCHES IN DIAMETER, AND FIVE FOOT INSIDE DIAMETER MANHOLES SHALL BE USED WITH SEWERS EQUAL TO OR GREATER THAN 24 INCHES IN DIAMETER, UNLESS OTHERWISE SPECIFIED.

34. THE CONTRACTOR SHALL MAINTAIN A MINIMUM COVER OF 4.5 FEET OVER ALL PRESSURE AND FORCE MAIN SEWER PIPE. WHERE SHALLOWER INSTALLATIONS ARE APPROVED BY THE ENGINEER, INSULATION WILL BE INSTALLED AS REQUIRED AND AS SPECIFIED.

35. CONTRACTOR SHALL USE AWWA C909 PVC FOR GRAVITY SEWER PIPE INSTALLATIONS WITH MORE THAN 20 FEET OF COVER. ALL PVC GRAVITY SEWER PIPE SHALL BE CLASS SDR 35, EXCEPT WHERE INDICATED OTHERWISE ON THE DRAWINGS. SEE SPECIFICATIONS.

36. OPENINGS FOR PIPE IN PRECAST MANHOLE BASES SHALL BE CAST IN THE REQUIRED LOCATIONS DURING MANHOLE MANUFACTURE. FIELD CUT OPENINGS WILL NOT BE PERMITTED UNLESS APPROVED BY THE ENGINEER.

37. FORM BRICK INVERTS IN MANHOLES WITH BRICK ON EDGE TO A DEPTH OF 0.8 INSIDE DIAMETER OF PIPE AND FORM A 1 INCH SLOPED BENCH WITH BRICK FLAT. INVERT SHALL BE SLOPED UNIFORMLY BETWEEN INLET AND OUTLET PIPE AND SHALL BE FORMED AND FILLED AS REQUIRED TO DIRECT THE FLOW AS INDICATED AND TO PREVENT DEPOSITION OF SOLIDS. CONTRACTOR SHALL RESHAPE INVERTS AS REQUIRED WHEN CONNECTING TO EXISTING MANHOLES.

38. SEWER CHIMNEY AND HOUSE CONNECTION LOCATIONS ARE SHOWN FOR ESTIMATING PURPOSES, AND ARE APPROXIMATE IN LOCATION. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

39. CALCULATION OF PIPE SLOPES IS BASED ON ELEVATION CHANGES DIVIDED BY THE DISTANCE BETWEEN THE OUTSIDE EDGES OF THE MANHOLE WALLS. FOR FOUR FOOT DIAMETER MANHOLES, THIS DISTANCE WAS CALCULATED AS THE CENTERLINE STATIONING MINUS FIVE FEET. FOR FIVE FOOT DIAMETER MANHOLES, THIS DISTANCE WAS CALCULATED AS THE CENTERLINE STATIONING MINUS SIX FEET. 'IN' INDICATES UPSTREAM END OF MANHOLE, 'OUT' INDICATES DOWNSTREAM END OF MANHOLE.

40. FORCE MAINS SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS INDICATED ON THE DRAWINGS. NO CRESTS IN NEW PIPING SHALL BE PERMITTED UNLESS OTHERWISE NOTED ON THE DRAWINGS. ALL BENDS SHALL BE SUITABLY RESTRAINED BY CAST–IN–PLACE CONCRETE THRUST BLOCKS OR MECHANICAL JOINT RESTRAINT. FOR DUCTILE IRON PIPE, THE NUMBER OF JOINTS ON EACH SIDE OF THE BENDS REQUIRING RETAINER GLANDS SHALL BE DETERMINED BY THE STANDARDS SET FORTH BY THE DUCTILE IRON PIPE RESEARCH ASSOCIATION.

41. WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADAPTERS, GASKETS, FITTINGS, AND ADDITIONAL PIPE AS REQUIRED TO COMPLETE THE CONNECTION AT NO ADDITIONAL COST TO THE OWNER.

42. ALL STREET EXCAVATIONS IN THE TOWN RIGHT OF WAY SHALL BE COMPLETELY CLOSED AT THE END OF EACH WORKING DAY BY BACKFILLING AND COMPACTING TO GRADE, APPLYING BITUMINOUS CONCRETE OR SECURED WITH STEEL PLATES ANCHORED AND RAMPED WITH BITUMINOUS CONCRETE MIX PER THE CONTRACT DOCUMENTS. ROADWAY TRENCH SHALL RECEIVE BITUMINOUS CONCRETE ON FRIDAYS, PRIOR TO THE WEEKEND. DURING WINTER MONTHS AT THE DIRECTION OF THE DEPARTMENT OF PUBLIC WORKS, STEEL PLATES ARE NOT PERMITTED UNLESS THE PLATE IS INSTALLED MINIMUM 6–INCHES BELOW THE ROADWAY SURFACE WITH COMPACTED DENSE GRADE OR BITUMINOUS CONCRETE TO GRADE

43. CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT OF ALL PROPOSED WORK AS SHOWN ON THE DRAWINGS. LAYOUT SHALL BE REVIEWED BY ENGINEER AND OWNER PRIOR TO START OF THE WORK.

44. EXISTING UTILITY AND PROPERTY LINE INFORMATION, TOPOGRAPHIC INFORMATION, EDGE OF PAVEMENT, UTILITY POLE LOCATIONS, AND LOCATIONS OF EXISTING ABOVE GROUND STRUCTURES WERE TAKEN FROM AVAILABLE EXISTING UTILITY INFORMATION PROVIDED BY THE TOWN. ADDITIONAL DETAILED TOPOGRAPHIC INFORMATION, EXISTING UTILITY AND HOUSE SILL INFORMATION WERE OBTAINED BY A 2022 SURVEY PERFORMED BY WESTON & SAMPSON. ELEVATIONS REFERENCED ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

45. ASSESSORS INFORMATION REPRESENTED ON THESE DRAWINGS IS TAKEN FROM THE TOWN ASSESSOR'S PARCEL MAPS AND IS INCLUDED FOR ILLUSTRATIVE PURPOSES ONLY. ASSESSORS INFORMATION IS NOT INTENDED TO BE AN AUTHORITATIVE RECORD OF PROPERTY BOUNDARIES OR A SOURCE OF INFORMATION FOR AN ACTUAL SURVEY OR LEGAL DESCRIPTION OF THE PROPERTY. NO WORK HAS BEEN PERFORMED TO DETERMINE THE DEPICTED PROPERTY LINES AND THEREFORE, THESE DRAWINGS ARE NOT INTENDED BE USED TO DELINEATE ANY EXISTING OR PROPOSED STRUCTURES, FEATURES OR BOUNDARIES RELATIVE TO PROPERTY LINES. AUTHORITATIVE RECORDS OF PROPERTY LINES MAY BE LOCATED AT THE STATE OR MUNICIPAL AGENCY RESPONSIBLE FOR MAINTAINING PUBLIC RECORDS IN WHICH THE PARCEL IS LOCATED. LEGALLY AUTHORITATIVE MAPS OF PROPERTY LINES MAY ONLY BE PRODUCED BY A PROFESSIONAL LAND SURVEYOR.

46. IN ACCORDANCE WITH DEP REGULATIONS, ALL MANHOLES WIITHIN THE DEP APPROVED ZONE II OF A PUBLIC WELL SHALL HAVE WATERTIGHT FRAMES AND COVERS DEP APPROVED ZONE II LIMITS HAVE BEEN IDENTIFIED ON THE PROJECT AREA LOCATION PLAN WATERTIGHT FRAMES AND COVERS ARE REQUIRED WHERE INDICATED ON THE DRAWINGS OR WHERE REQUIRED BY THE ENGINEER. THE CONTRACTOR SHALL NOT USE CALCIUM CHLORIDE FOR DUST CONTROL IN THE DEP APPROVED ZONE II AREA.

47. THE BORING LOG LEGEND IS SHOWN ON THIS SHEET. SOIL SAMPLES ARE AVAILABLE FOR REVIEW UPON REQUEST.

48. ANY DRAINAGE PIPE DAMAGED OR MOVED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED IN KIND USING THE SAME PIPE, UNLESS OTHERWISE APPROVED OR REQUIRED BY THE ENGINEER. REPAIRS WILL REQUIRE A MINIMUM OF ONE FULL LENGTH OF PIPE WITH NO RUBBER COUPLINGS OR FITTINGS ALLOWED.

49. CATCH BASIN PROTECTION SHALL BE PROVIDED AT ALL CATCH BASINS LOCATED ALONG THE PROJECT ROUTE AND AS REQUIRED BY THE ENGINEER.

50. ANY TREE REMOVAL AND/OR PRUNING SHALL BE COORDINATED WITH THE TOWN PRIOR TO ANY WORK TAKING PLACE. NO TREE RELATED WORK SHALL BEGIN UNTIL APPROVED AND AUTHORIZED BY THE TOWN.

51. THE CONTRACTOR SHALL NOTE THE PRESENCE OF HIGH PRESSURE BURIED GAS MAINS WITHIN THE PROJECT EXTENTS. THE CONTRACTOR SHALL PERFORM ALL CROSSINGS IN ACCORDANCE WITH THE UTILITY REQUIREMENTS AND SHALL BE RESPONSIBLE FOR ALL PERMITS, FEES, FIELD STAFFING, CORRESPONDENCE AND COORDINATION REQUIRED BY THE UTILITY PROVIDER.

52. THE CONTRACTOR SHALL NOT HAVE ANY RIGHT OF PROPERTY, IN ANY MATERIALS TAKEN FROM AN EXCAVATION. SUITABLE EXCAVATED MATERIAL MAY BE INCORPORATED IN THE PROJECT, WITH EXCESS MATERIAL DISPOSED OF AT A LOCATION PROVIDED BY THE CONTRACTOR. THESE PROVISIONS SHALL IN NO WAY RELIEVE THE CONTRACTOR OF HIS OBLIGATIONS TO PROPERLY DISPOSE OF AND REPLACE ANY MATERIAL DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING. THE CONTRACTOR SHALL DISPOSE OF UNSUITABLE AND EXCESS MATERIAL IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE CONTRACT DOCUMENTS.

53. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND DISPOSING OF ALL DEMOLISHED MATERIALS. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL STATE AND LOCAL REGULATIONS.

54. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATIONS (OSHA), AND ALL OTHER OVERSIGHT AGENCIES.

55. CONTRACTOR SHALL ARRANGE WITH THE OWNER FOR ACCESS TO THE WORK SITES DURING THE CONSTRUCTION WORK.

56. ALL REDUCERS SHALL BE CONCENTRIC TYPE UNLESS DESIGNATED AS ECCENTRIC (ECC) ON THE DRAWINGS. ECCENTRIC REDUCERS SHALL BE INSTALLED FLAT SIDE UP.

Project:
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Consultants:

Revisions:

No.	Date	Description

COA:

Seal:
STEVEN K. PEDERSEN
CIVIL
No. 38295

Issued For:
BIDDING

Scale: AS NOTED

Date: SEPTEMBER 2024
Drawn By: ALW
Reviewed By: RDH
Approved By: SKP

W&S Project No.: ENG23 - 0189
W&S File No.:

Drawing Title:
NOTES, LEGEND AND ABBREVIATIONS

Sheet Number:
G001

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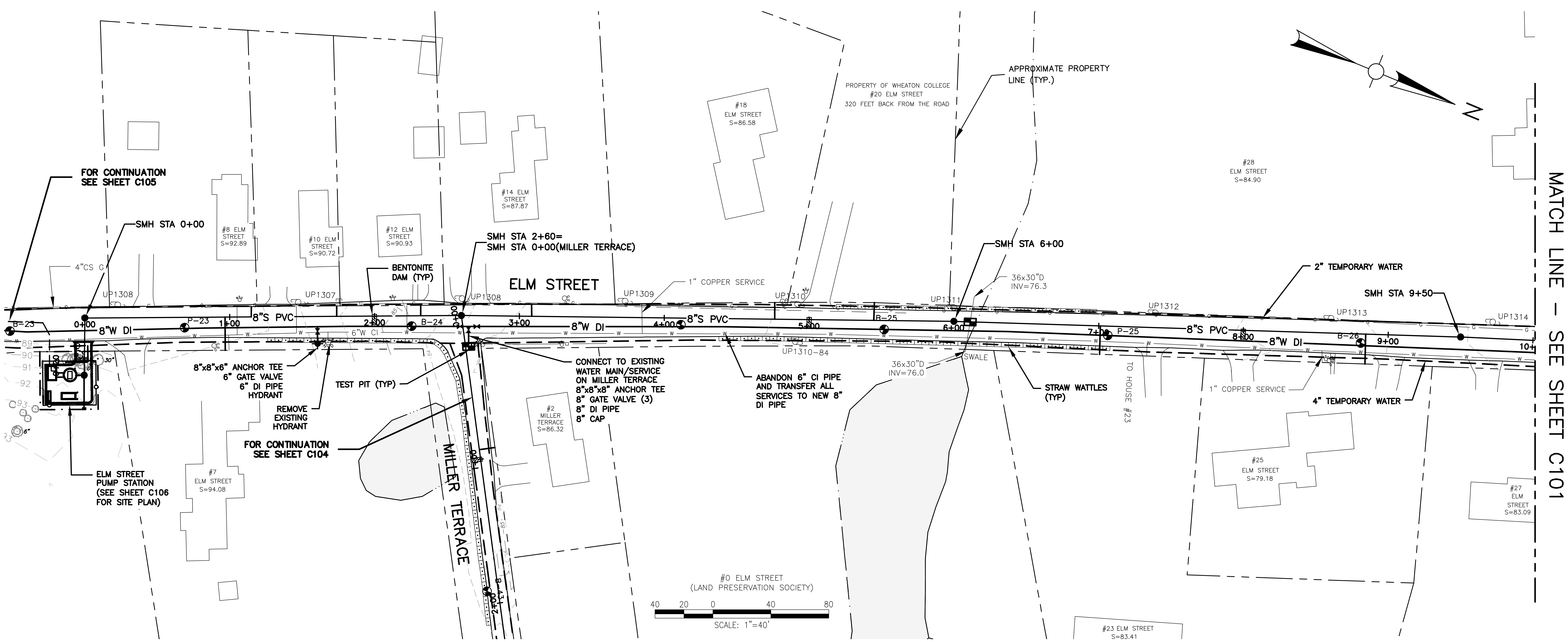

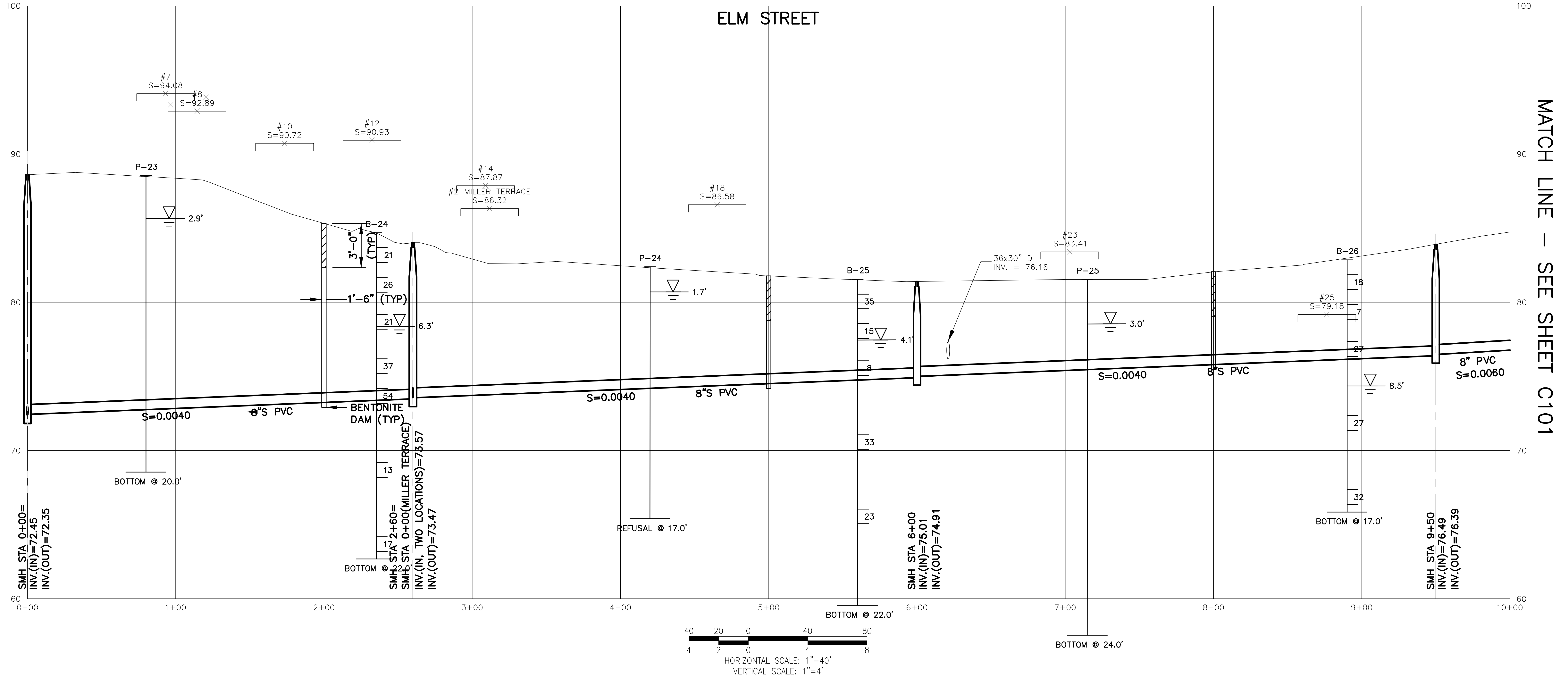

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Scale: AS NOTED

Date: SEPTEMBER 2024
Drawn By: ALW
Reviewed By: RDH
Approved By: SKP

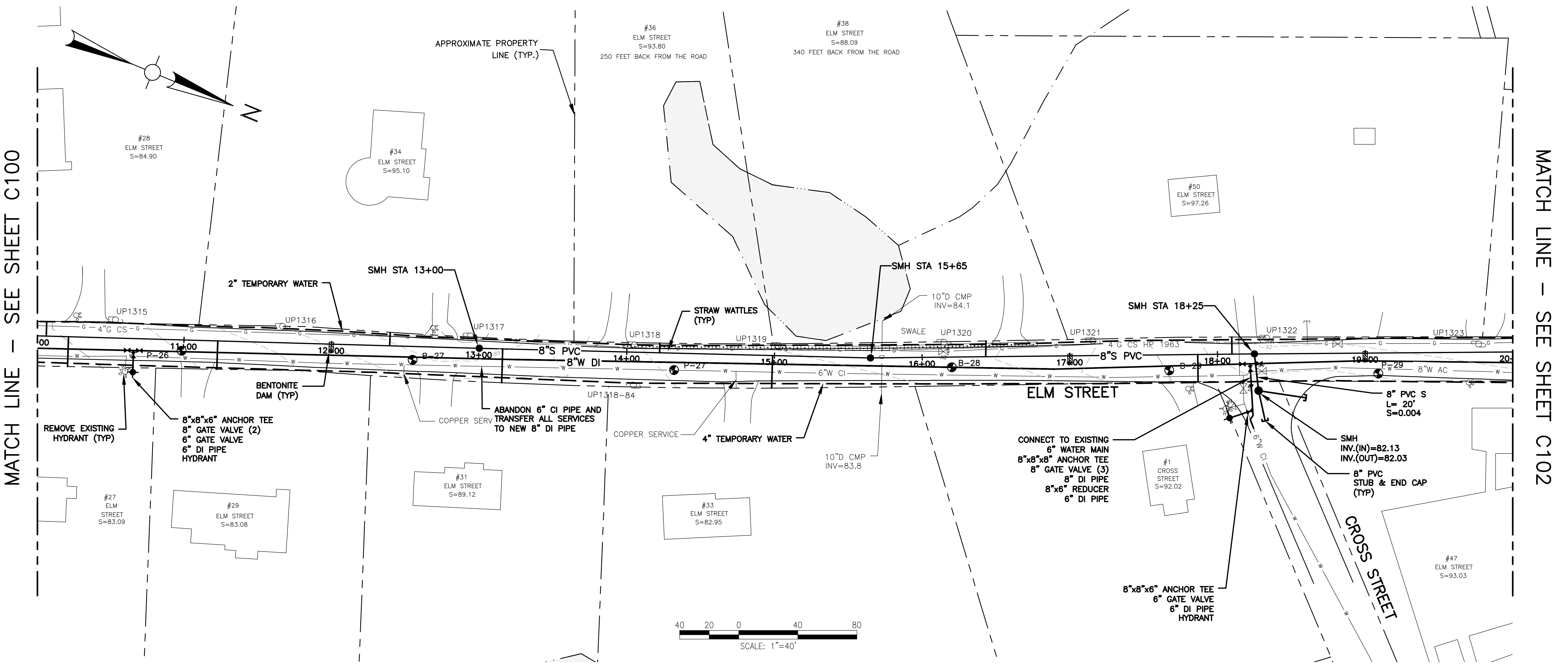
W&S Project No.: ENG23 - 0189
W&S File No.:

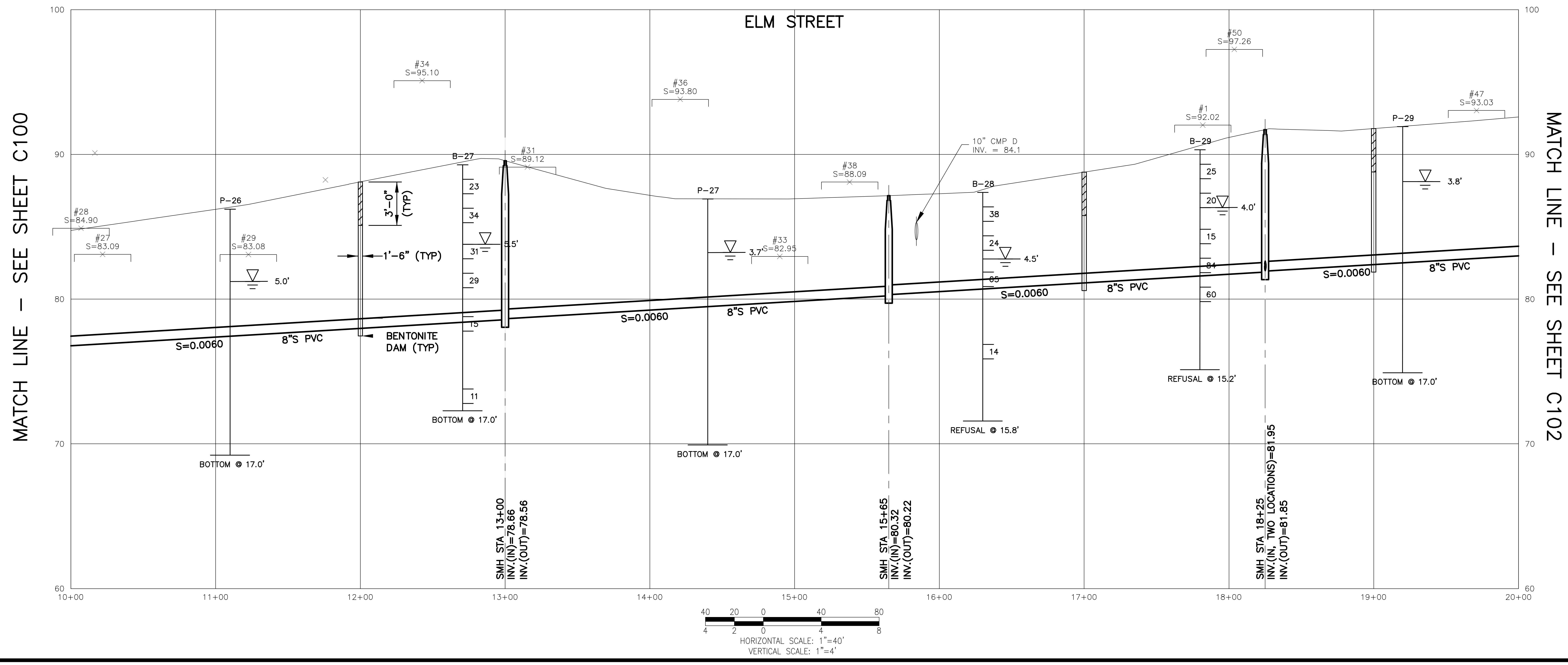
Drawing Title:

ELM STREET
STA 0+00 TO
STA 10+00

Sheet Number:

C100





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Date: SEPTEMBER 2024
Drawn By: ALW
Reviewed By: RDH
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W&S Project No.: ENG23 - 0189
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ELM STREET
STA 10+00 TO
STA 20+00

Sheet Number:

C101

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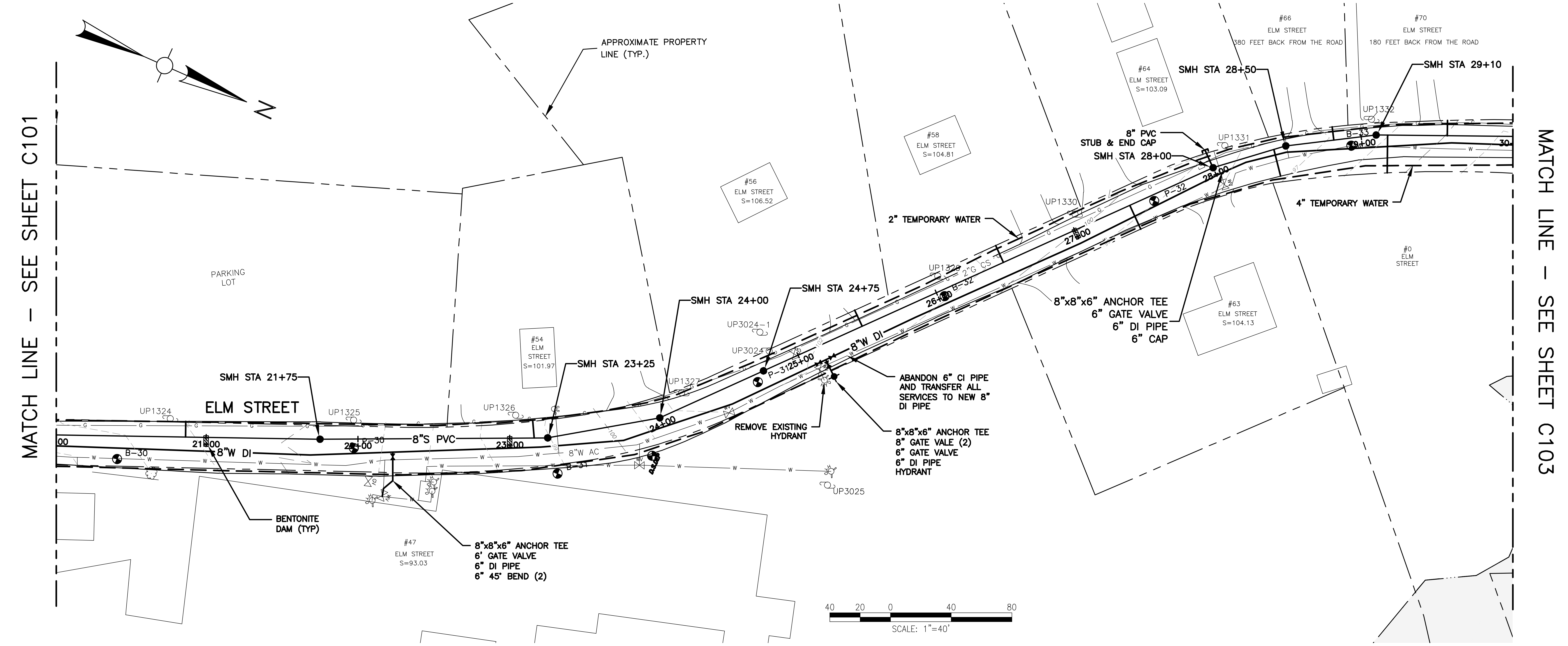

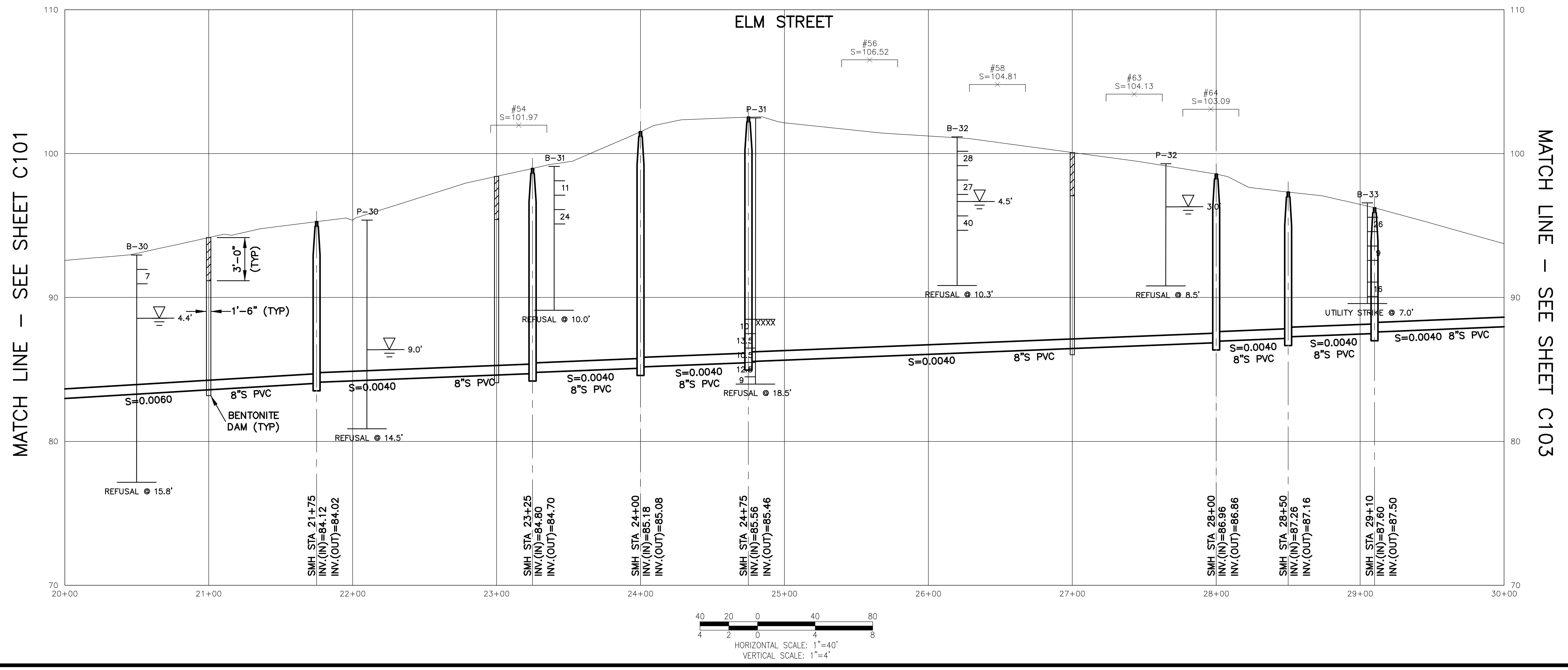

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Date: SEPTEMBER 2024
Drawn By: ALW
Reviewed By: RDH
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W&S Project No.: ENG23 - 0189
W&S File No.:

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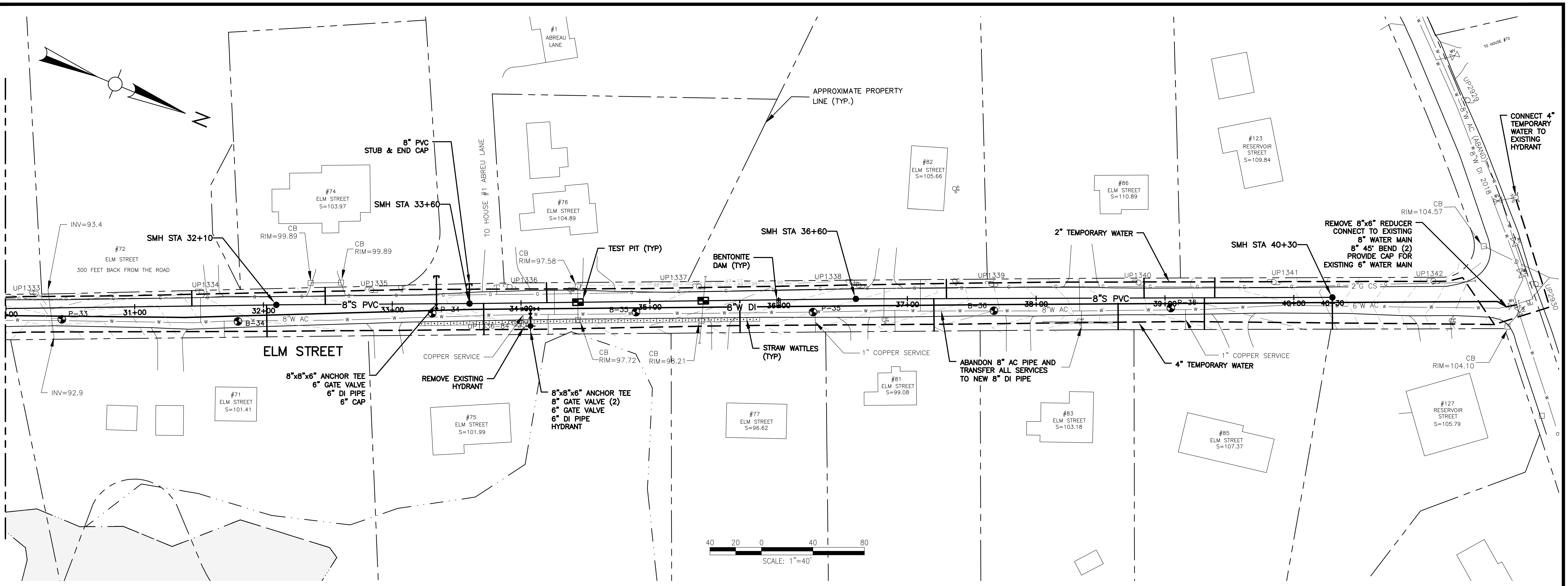
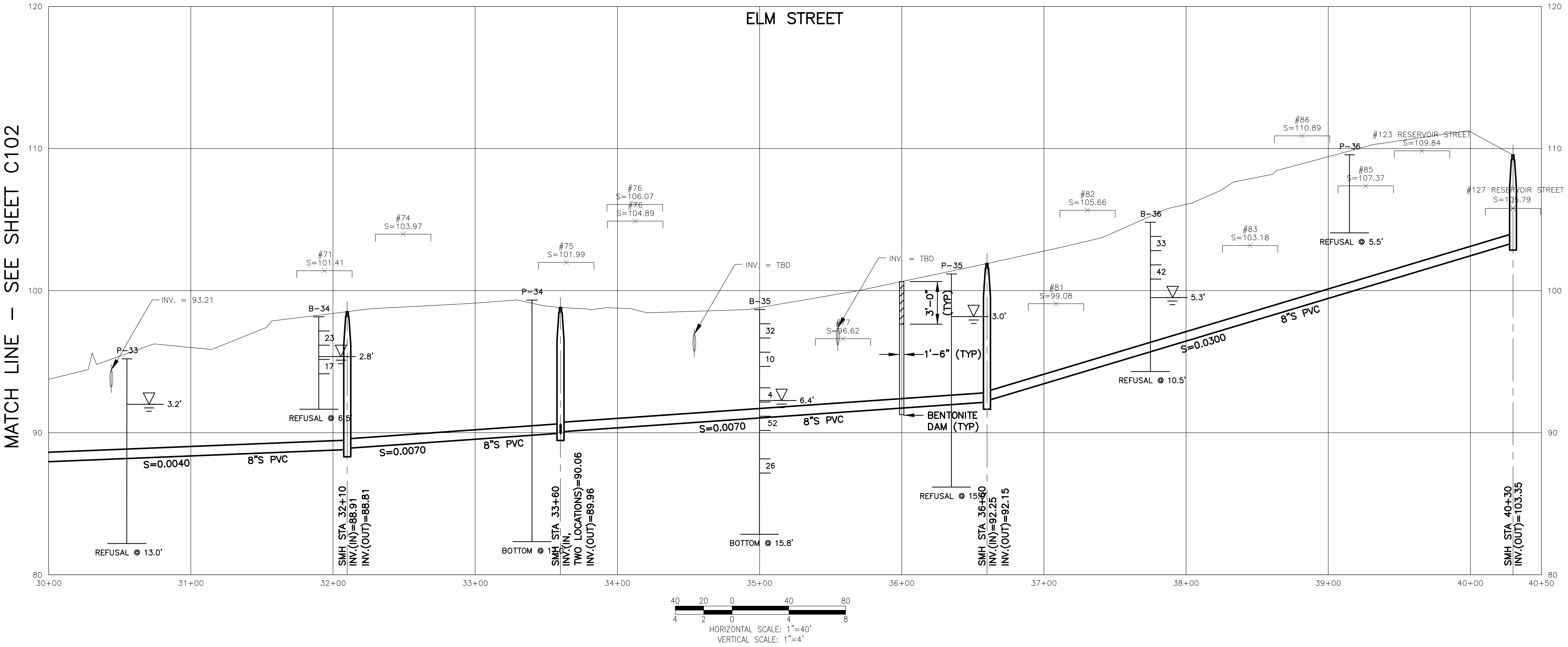
ELM STREET
STA 20+00 TO
STA 30+00

Sheet Number:

C102





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Reviewed By:	RDH
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W&S Project No.:	ENG23 - 0189
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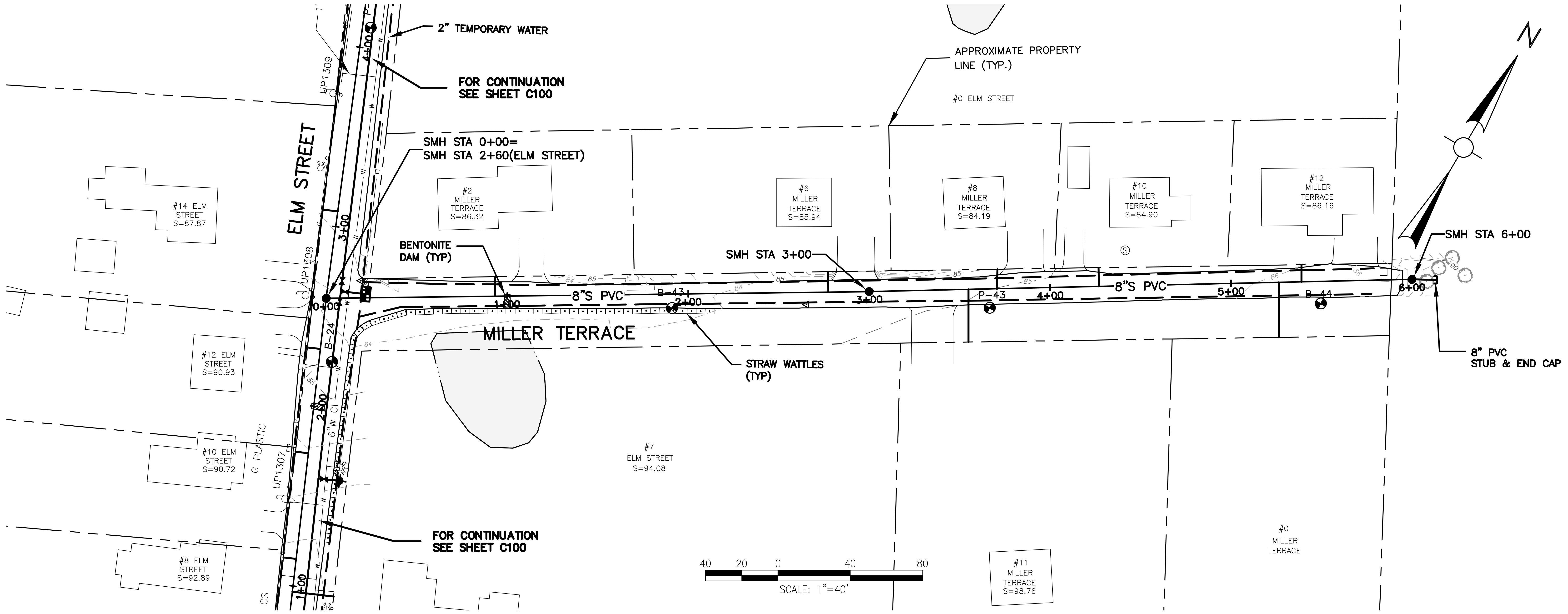
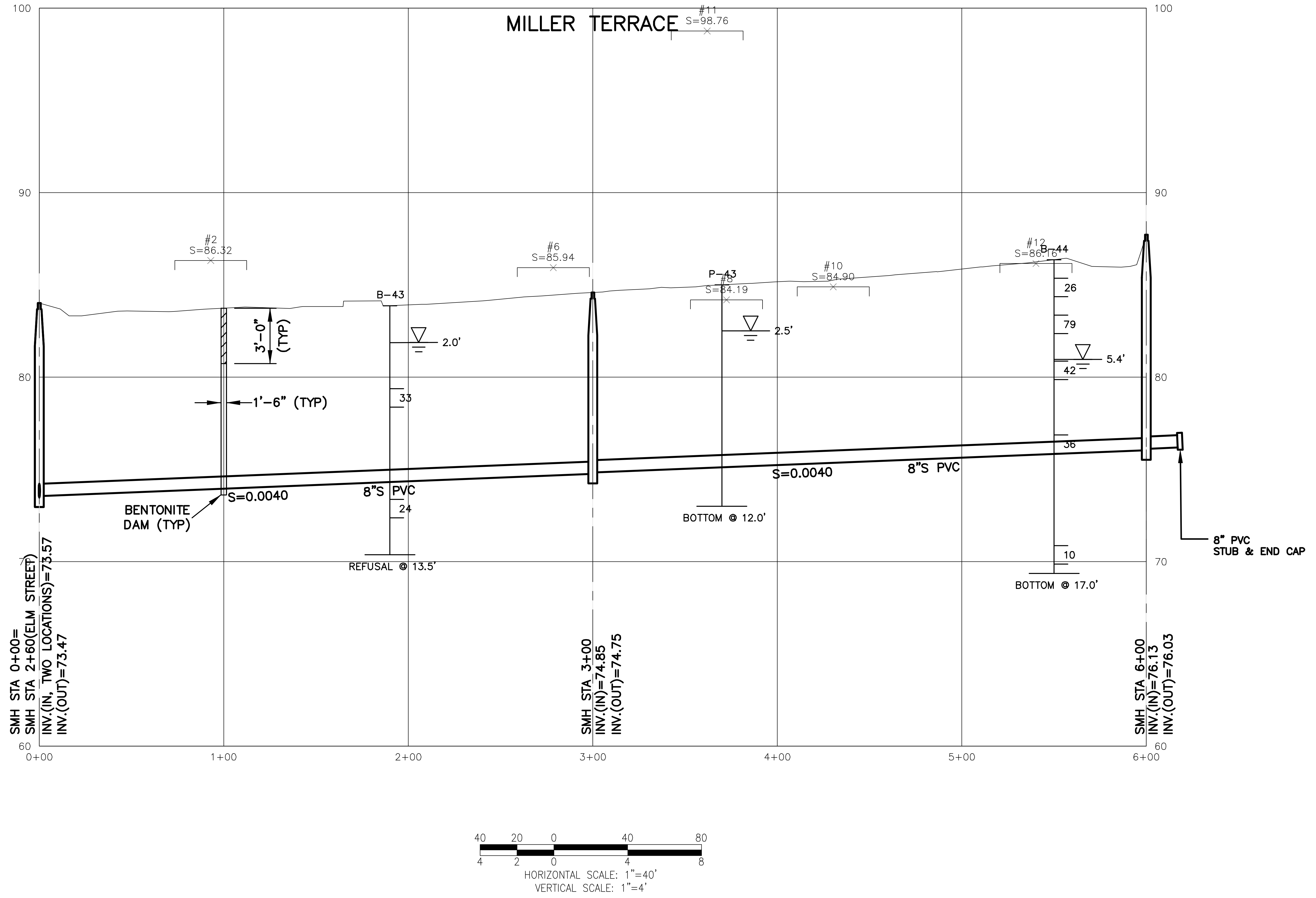
Drawing Title:

ELM STREET
STA 30+00 TO
STA 40+30

Sheet Number:

C103





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Date: SEPTEMBER 2024
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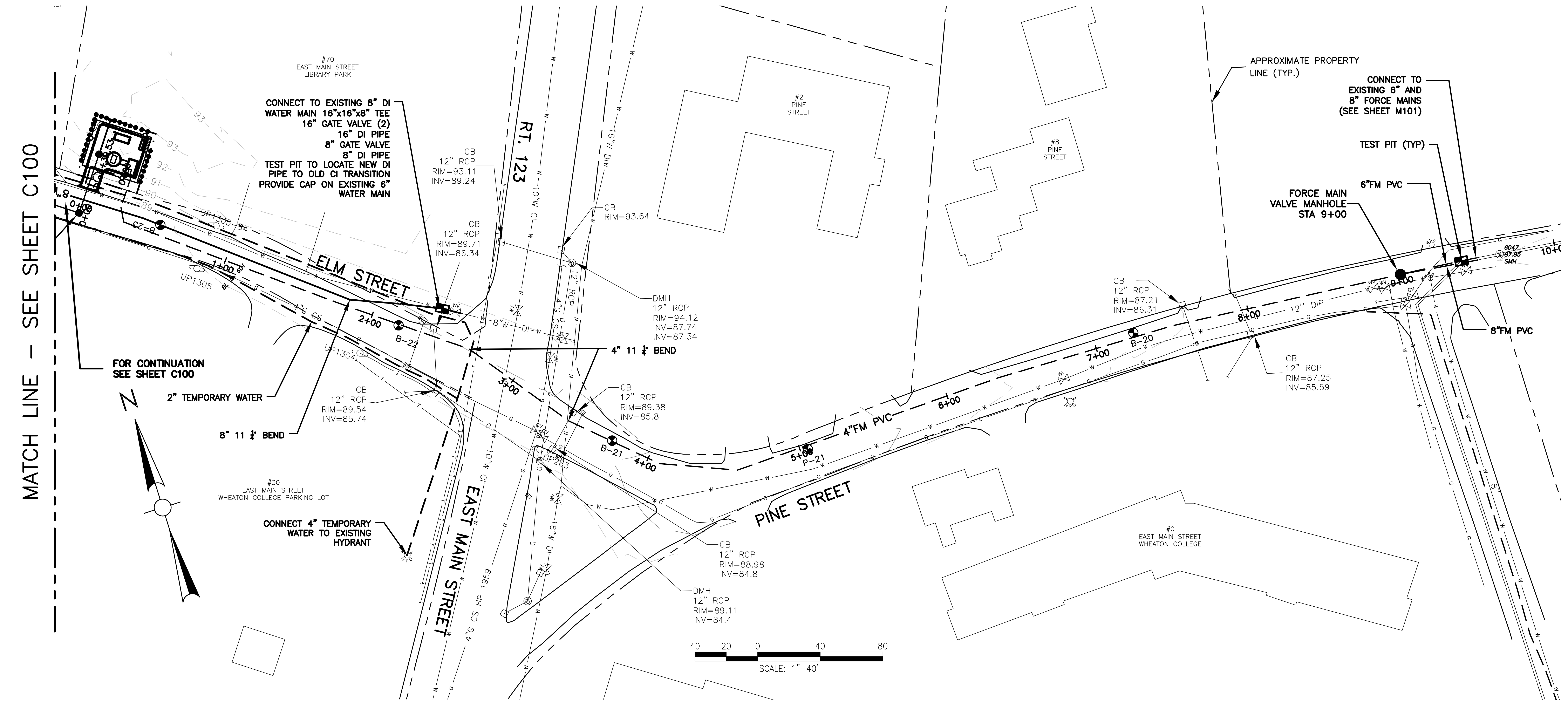
W&S Project No.: ENG23 - 0189
W&S File No.:

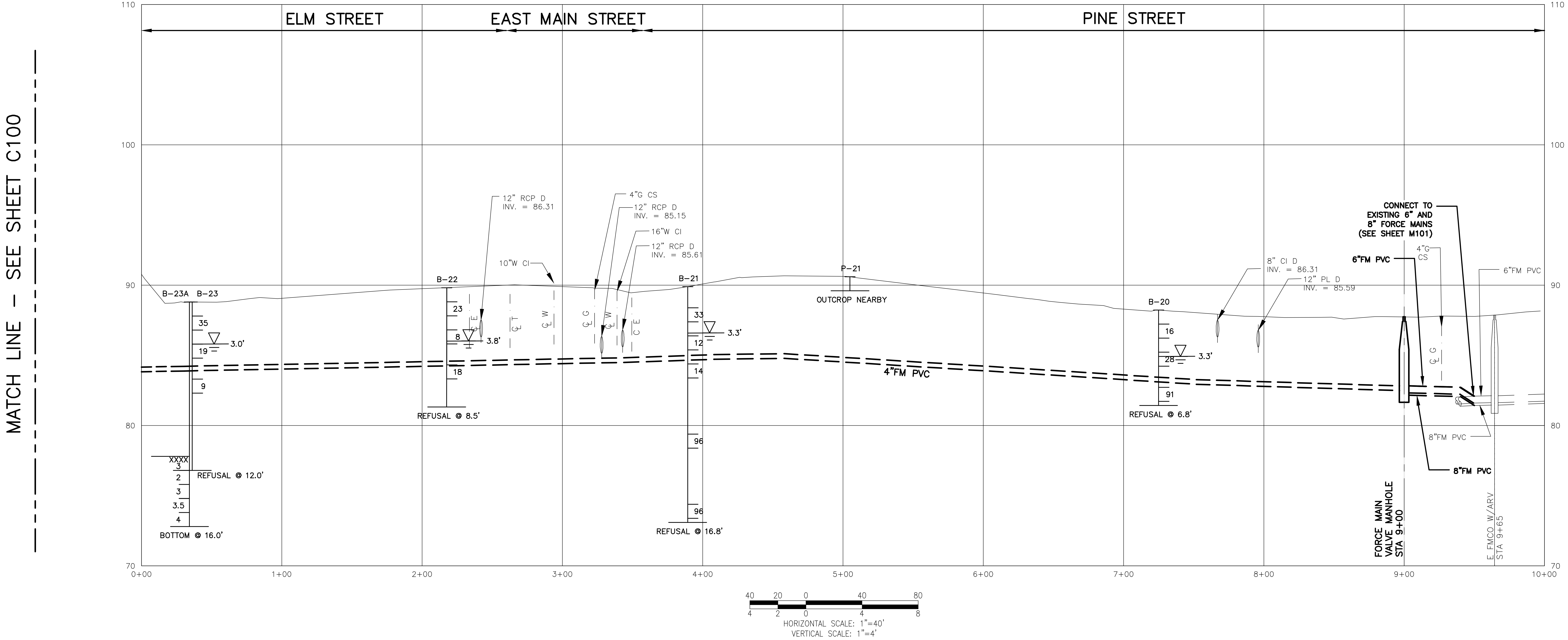
Drawing Title:

MILLER
TERRACE
STA 0+00 TO
STA 6+00

Sheet Number:

C104





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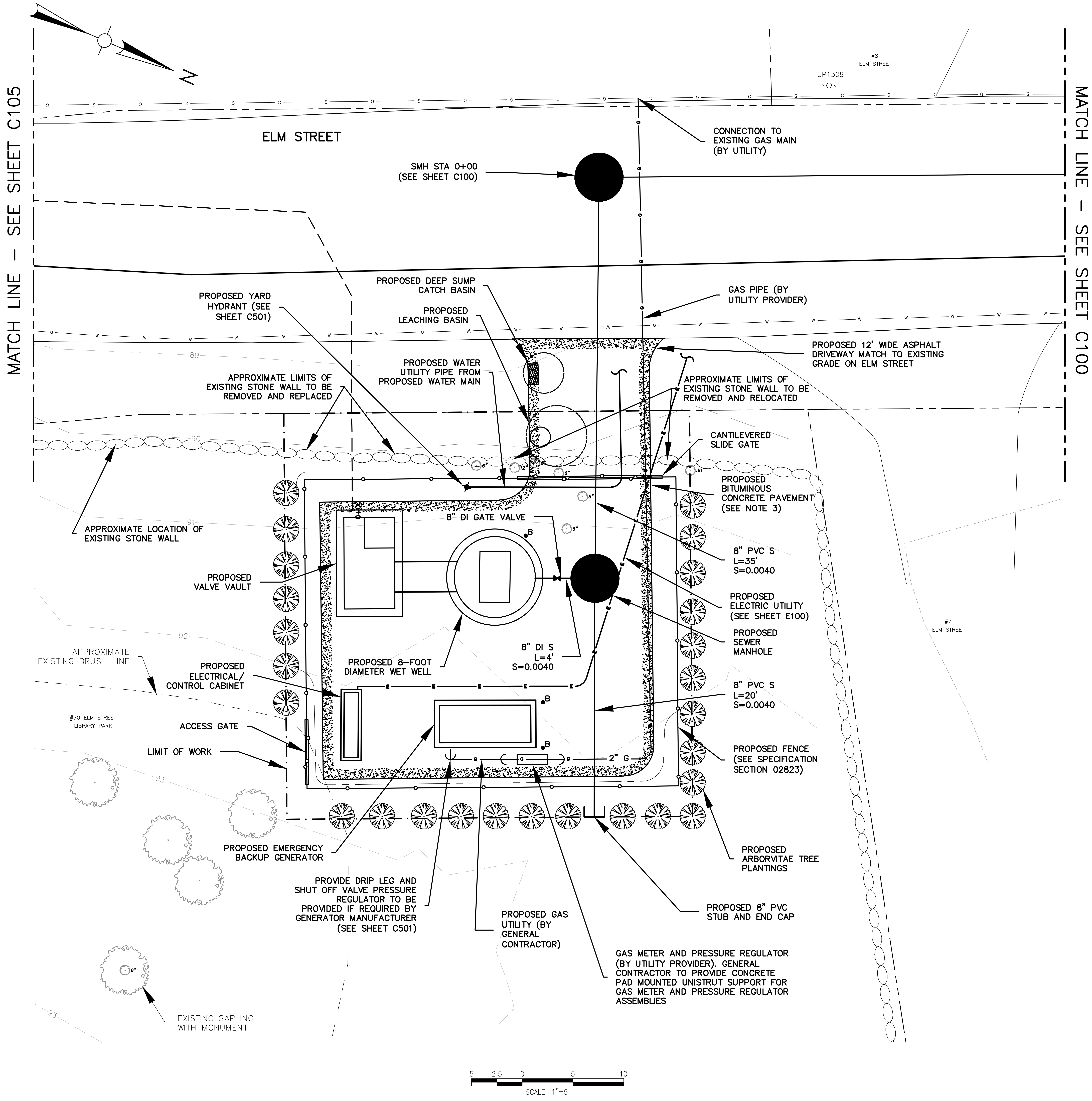
Drawing Title:

ELM STREET,
EAST MAIN STREET
& PINE STREET
STA 0+00 TO
STA 9+50

Sheet Number:

C105


N
MATCH LINE – SEE SHEET C105
MATCH LINE – SEE SHEET C100
ELM STREET
#8 ELM STREET
UP1308
CONNECTION TO EXISTING GAS MAIN (BY UTILITY)
SMH STA 0+00 (SEE SHEET C100)
GAS PIPE (BY UTILITY PROVIDER)
PROPOSED DEEP SUMP CATCH BASIN
PROPOSED LEACHING BASIN
PROPOSED YARD HYDRANT (SEE SHEET C501)
PROPOSED WATER UTILITY PIPE FROM PROPOSED WATER MAIN
APPROXIMATE LIMITS OF EXISTING STONE WALL TO BE REMOVED AND REPLACED
PROPOSED 12' WIDE ASPHALT DRIVEWAY MATCH TO EXISTING GRADE ON ELM STREET
APPROXIMATE LIMITS OF EXISTING STONE WALL TO BE REMOVED AND RELOCATED
CANTILEVERED SLIDE GATE
PROPOSED BITUMINOUS CONCRETE PAVEMENT (SEE NOTE 3)
89
90
91
92
93
APPROXIMATE LOCATION OF EXISTING STONE WALL
8" DI GATE VALVE
B
8" PVC S
L=35'
S=0.0040
PROPOSED VALVE VAULT
PROPOSED ELECTRIC UTILITY (SEE SHEET E100)
PROPOSED SEWER MANHOLE
#7 ELM STREET
APPROXIMATE EXISTING BRUSH LINE
PROPOSED ELECTRICAL/ CONTROL CABINET
PROPOSED 8-FOOT DIAMETER WET WELL
8" DI S
L=4'
S=0.0040
8" PVC S
L=20'
S=0.0040
#70 ELM STREET LIBRARY PARK
ACCESS GATE
LIMIT OF WORK
2" G
PROPOSED FENCE (SEE SPECIFICATION SECTION 02823)
PROPOSED ARBORVITAE TREE PLANTINGS
PROPOSED EMERGENCY BACKUP GENERATOR
PROVIDE DRIP LEG AND SHUT OFF VALVE PRESSURE REGULATOR TO BE PROVIDED IF REQUIRED BY GENERATOR MANUFACTURER (SEE SHEET C501)
PROPOSED GAS UTILITY (BY GENERAL CONTRACTOR)
GAS METER AND PRESSURE REGULATOR (BY UTILITY PROVIDER). GENERAL CONTRACTOR TO PROVIDE CONCRETE PAD MOUNTED UNISTRUT SUPPORT FOR GAS METER AND PRESSURE REGULATOR ASSEMBLIES
PROPOSED 8" PVC STUB AND END CAP
EXISTING SAPLING WITH MONUMENT
5 2.5 0 5 10
SCALE: 1"=5'

NOTES:

1. CONTRACTOR SHALL NOT STOCKPILE MATERIALS OUTSIDE OF THE LIMIT OF WORK. CONTRACTOR RESPONSIBLE FOR COORDINATING THE EXTENSION OF ALL NECESSARY UTILITIES.
2. UTILITIES TO THE PUMP STATION SITE AS DESCRIBED IN THE SPECIFICATIONS.
3. CONTRACTOR SHALL PROVIDE 2" BINDER COURSE AND 1 1/2" TOP COURSE BITUMINOUS CONCRETE PAVEMENT WHERE SHOWN AND SHALL RESTORE ALL OTHER DISTURBED AREAS TO PRE-CONSTRUCTION CONDITION.
4. FOR BORING LOGS, SEE APPENDIX A IN SPECIFICATIONS.
5. FOR ALL GRAVITY SEWERS CONNECTING TO THE WETWELL, CLASS 52 DI PIPE SHALL BE USED FROM THE INSIDE WALL OF THE WETWELL TO THE NEXT GRAVITY SEWER MANHOLE AT WHICH POINT A TRANSITION SHALL BE MADE TO PVC PIPE. ALL GRAVITY DI PIPE SHALL BE CONSIDERED INCIDENTAL TO THE LUMP SUM OF PUMP STATION PRICE.

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Revisions:

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COA:

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Seal:

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BIDDING

Scale: AS NOTED

Date: SEPTEMBER 2024
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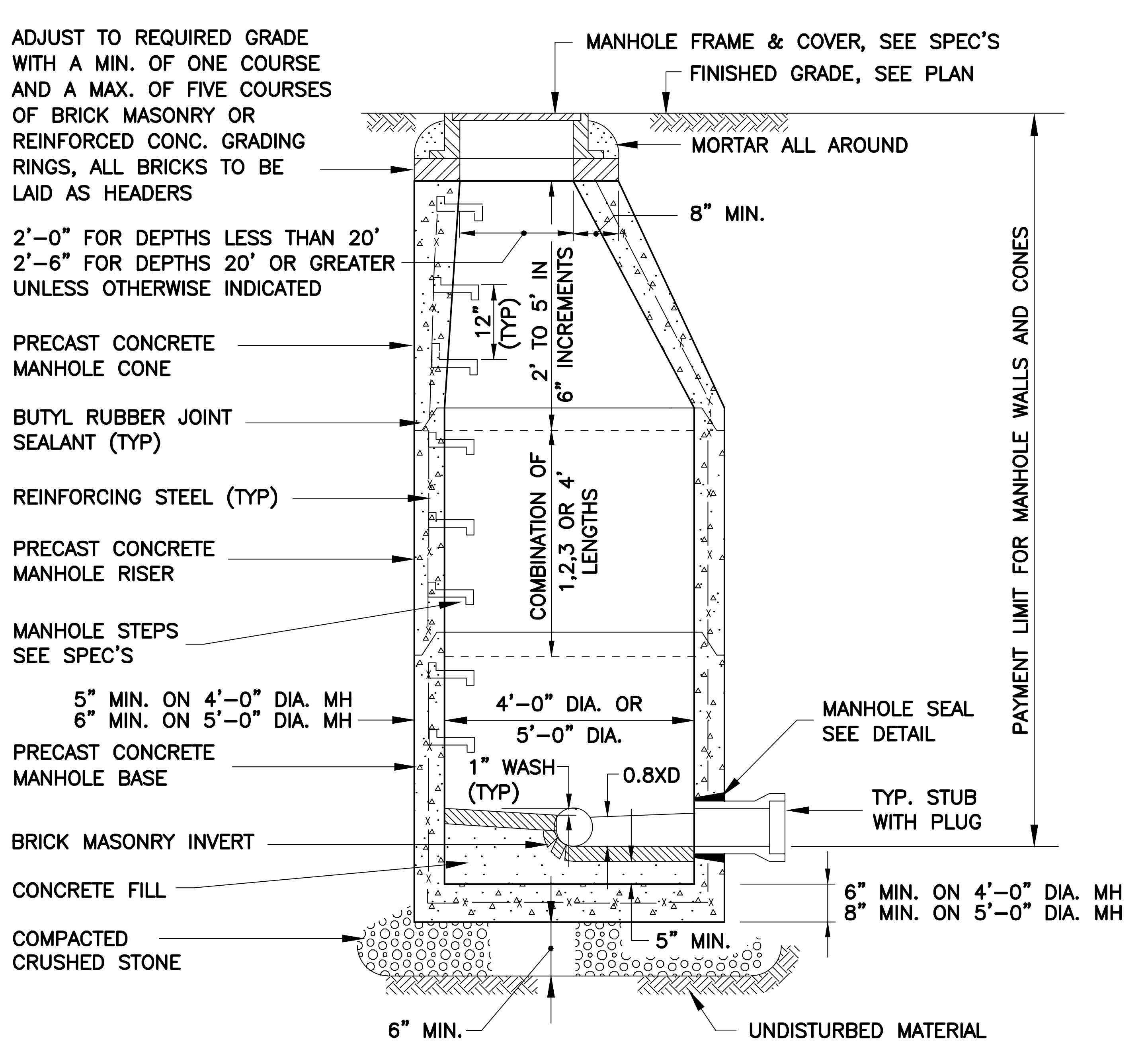
Reviewed By: RDH
Approved By: SKP
W&S Project No.: ENG23 - 0189
W&S File No.:

Drawing Title:

ELM STREET PUMP STATION SITE PLAN

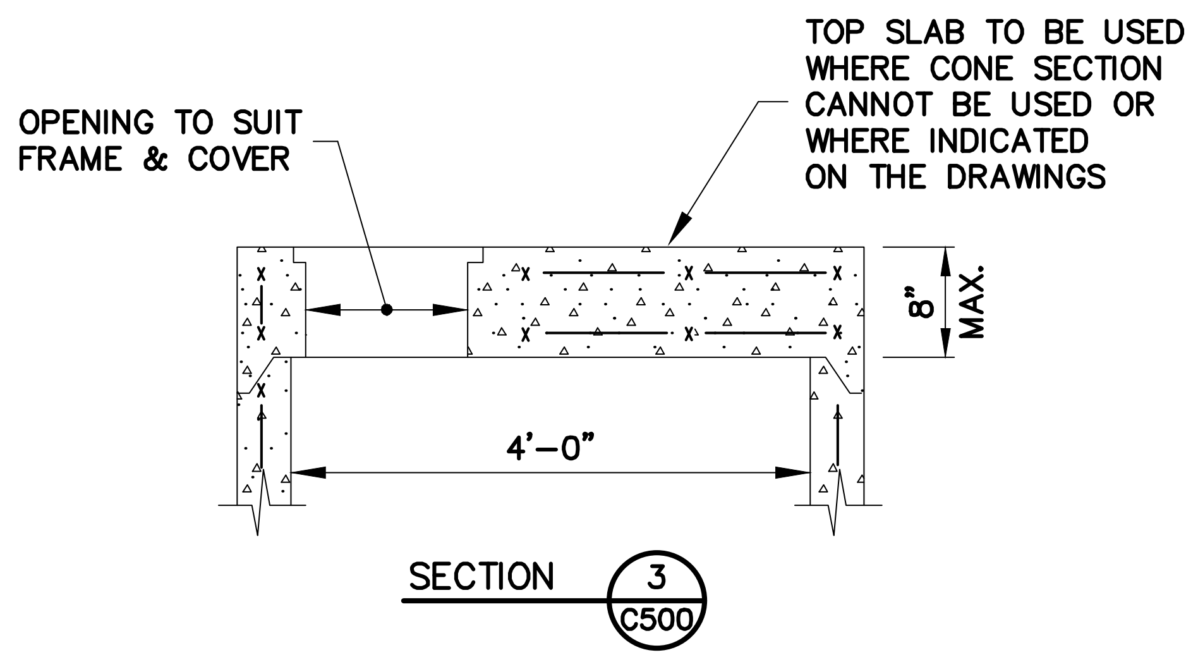
Sheet Number:

C106


ADJUST TO REQUIRED GRADE WITH A MIN. OF ONE COURSE AND A MAX. OF FIVE COURSES OF BRICK MASONRY OR REINFORCED CONC. GRADING RINGS, ALL BRICKS TO BE LAID AS HEADERS
MANHOLE FRAME & COVER, SEE SPEC'S
FINISHED GRADE, SEE PLAN
MORTAR ALL AROUND
8" MIN.
2'-0" FOR DEPTHS LESS THAN 20'
2'-6" FOR DEPTHS 20' OR GREATER UNLESS OTHERWISE INDICATED
12" (TYP)
2' TO 5' IN 6" INCREMENTS
PRECAST CONCRETE MANHOLE CONE
BUTYL RUBBER JOINT SEALANT (TYP)
REINFORCING STEEL (TYP)
COMBINATION OF 1,2,3 OR 4' LENGTHS
PRECAST CONCRETE MANHOLE RISER
MANHOLE STEPS SEE SPEC'S
PAYMENT LIMIT FOR MANHOLE WALLS AND CONES
5" MIN. ON 4'-0" DIA. MH
6" MIN. ON 5'-0" DIA. MH
4'-0" DIA. OR 5'-0" DIA.
PRECAST CONCRETE MANHOLE BASE
MANHOLE SEAL SEE DETAIL
1" WASH (TYP)
0.8XD
TYP. STUB WITH PLUG
BRICK MASONRY INVERT
CONCRETE FILL
6" MIN. ON 4'-0" DIA. MH
8" MIN. ON 5'-0" DIA. MH
COMPACTED CRUSHED STONE
5" MIN.
6" MIN.
UNDISTURBED MATERIAL

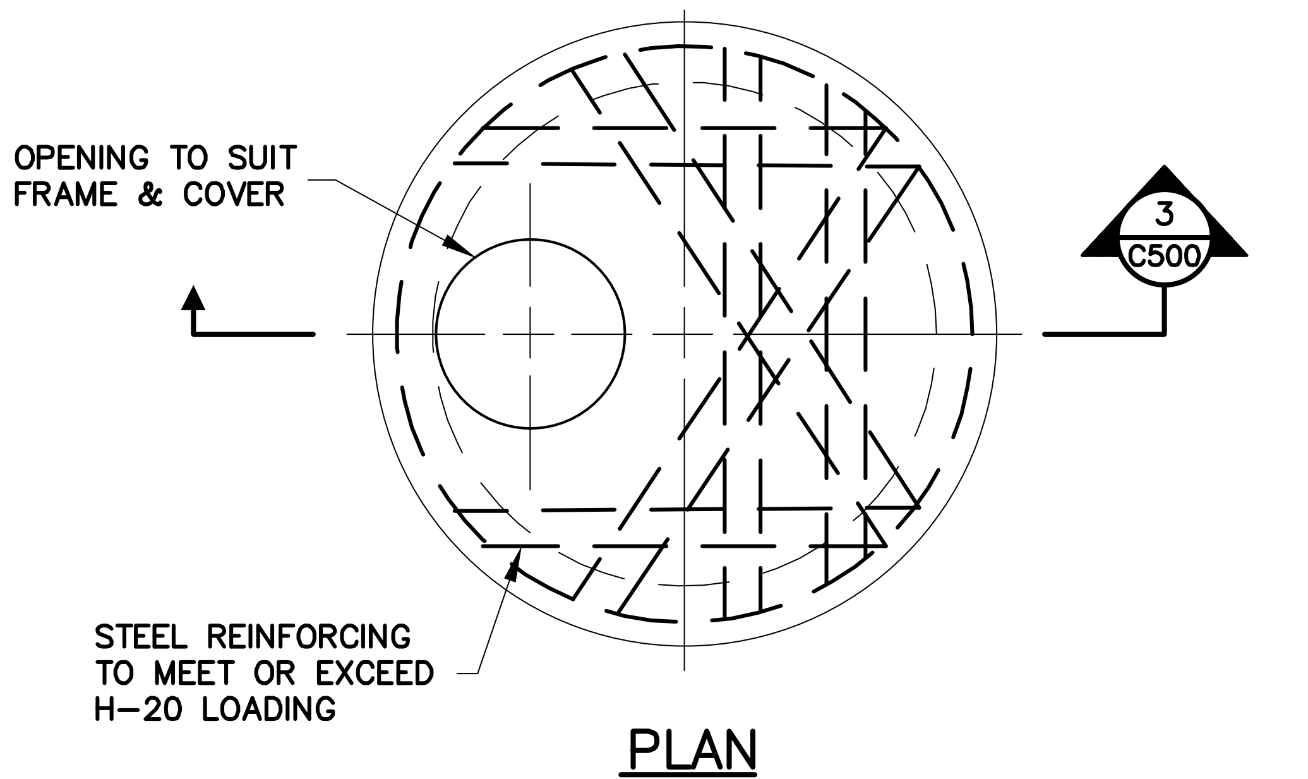
4'-0" AND 5'-0" DIA. PRECAST CONCRETE MANHOLE DETAIL

N.T.S.

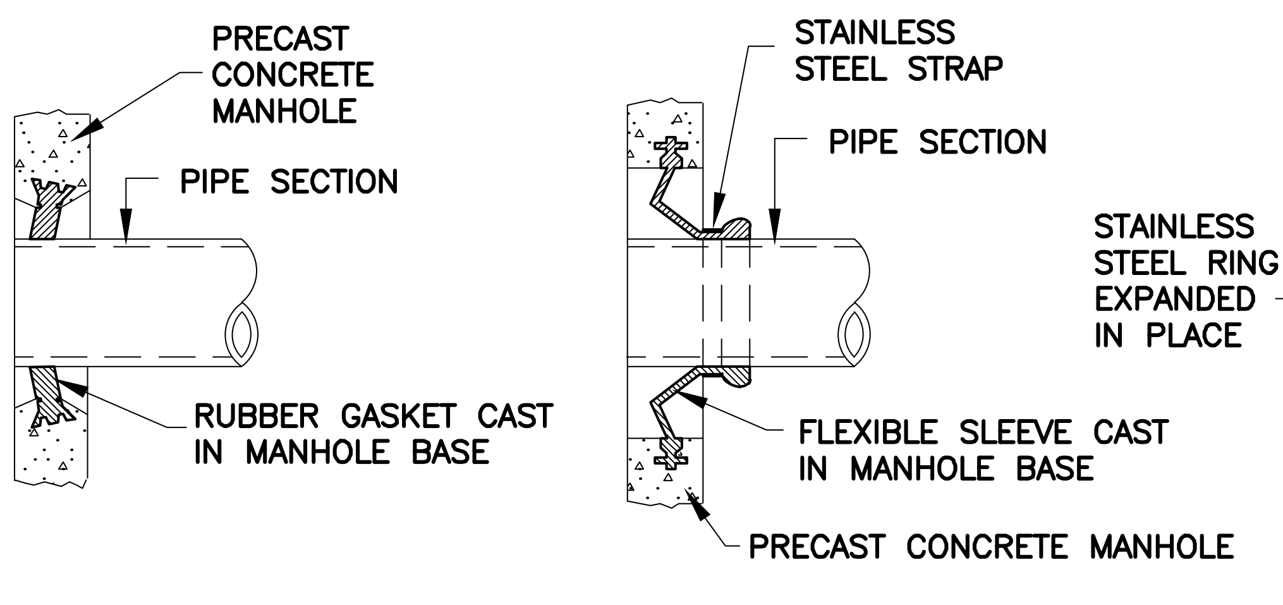

OPENING TO SUIT FRAME & COVER
TOP SLAB TO BE USED WHERE CONE SECTION CANNOT BE USED OR WHERE INDICATED ON THE DRAWINGS
8" MAX.
4'-0"
SECTION 3 C500

MANHOLE TOP SLAB

N.T.S.

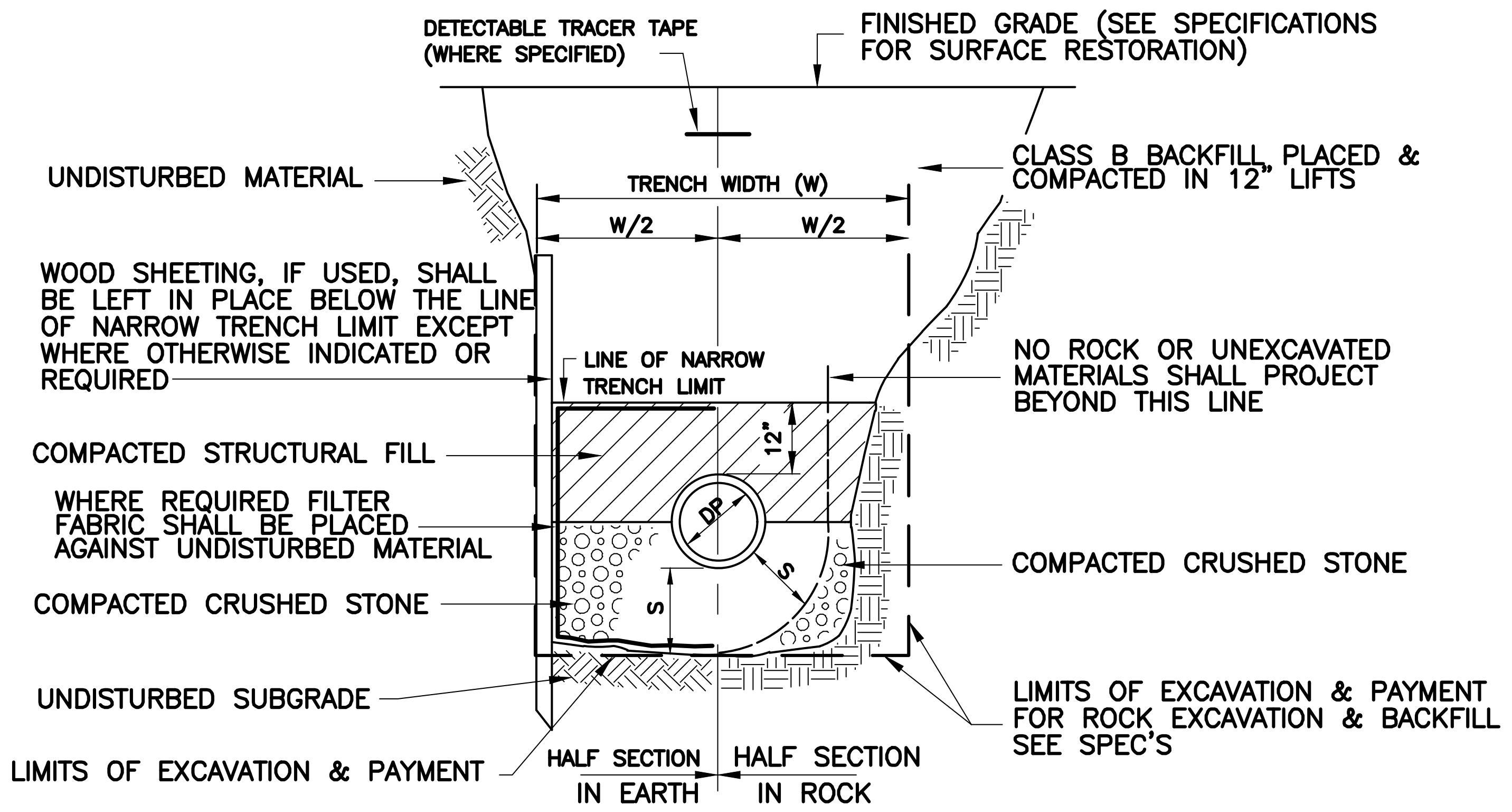

OPENING TO SUIT FRAME & COVER
3 C500
STEEL REINFORCING TO MEET OR EXCEED H-20 LOADING

PLAN



MANHOLE SEAL DETAILS

N.T.S.


DETECTABLE TRACER TAPE (WHERE SPECIFIED)
FINISHED GRADE (SEE SPECIFICATIONS FOR SURFACE RESTORATION)
UNDISTURBED MATERIAL
TRENCH WIDTH (W)
W/2
W/2
CLASS B BACKFILL PLACED & COMPACTED IN 12" LIFTS
WOOD SHEETING, IF USED, SHALL BE LEFT IN PLACE BELOW THE LINE OF NARROW TRENCH LIMIT EXCEPT WHERE OTHERWISE INDICATED OR REQUIRED
LINE OF NARROW TRENCH LIMIT
NO ROCK OR UNEXCAVATED MATERIALS SHALL PROJECT BEYOND THIS LINE
12"
COMPACTED STRUCTURAL FILL
DP
WHERE REQUIRED FILTER FABRIC SHALL BE PLACED AGAINST UNDISTURBED MATERIAL
S
S
COMPACTED CRUSHED STONE
COMPACTED CRUSHED STONE
UNDISTURBED SUBGRADE
LIMITS OF EXCAVATION & PAYMENT FOR ROCK EXCAVATION & BACKFILL SEE SPEC'S
LIMITS OF EXCAVATION & PAYMENT
HALF SECTION IN EARTH
HALF SECTION IN ROCK

NOTE:
FOR W, DP, & S, SEE TABLE A

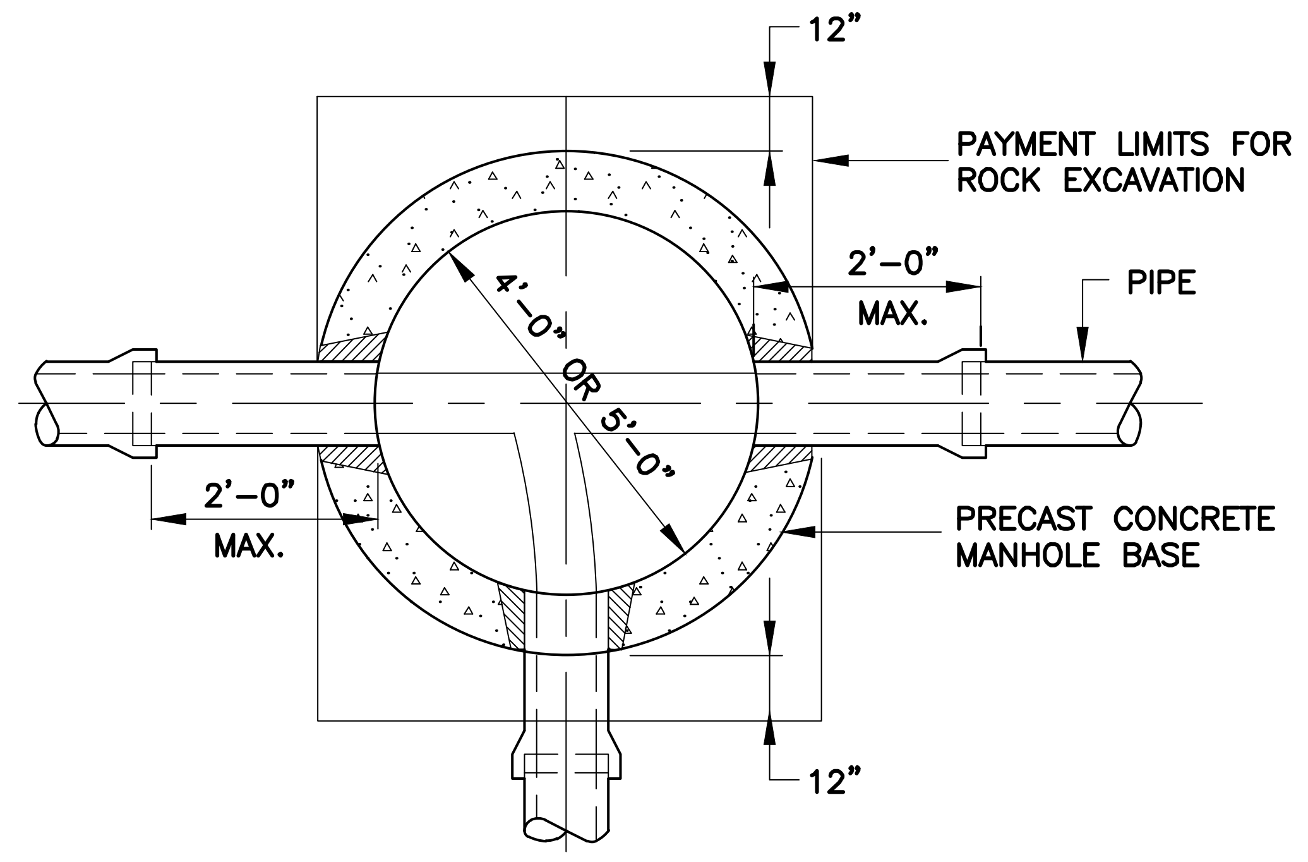
TRENCH DETAIL

(SEWER, FORCE MAIN, STORM DRAIN)

N.T.S.

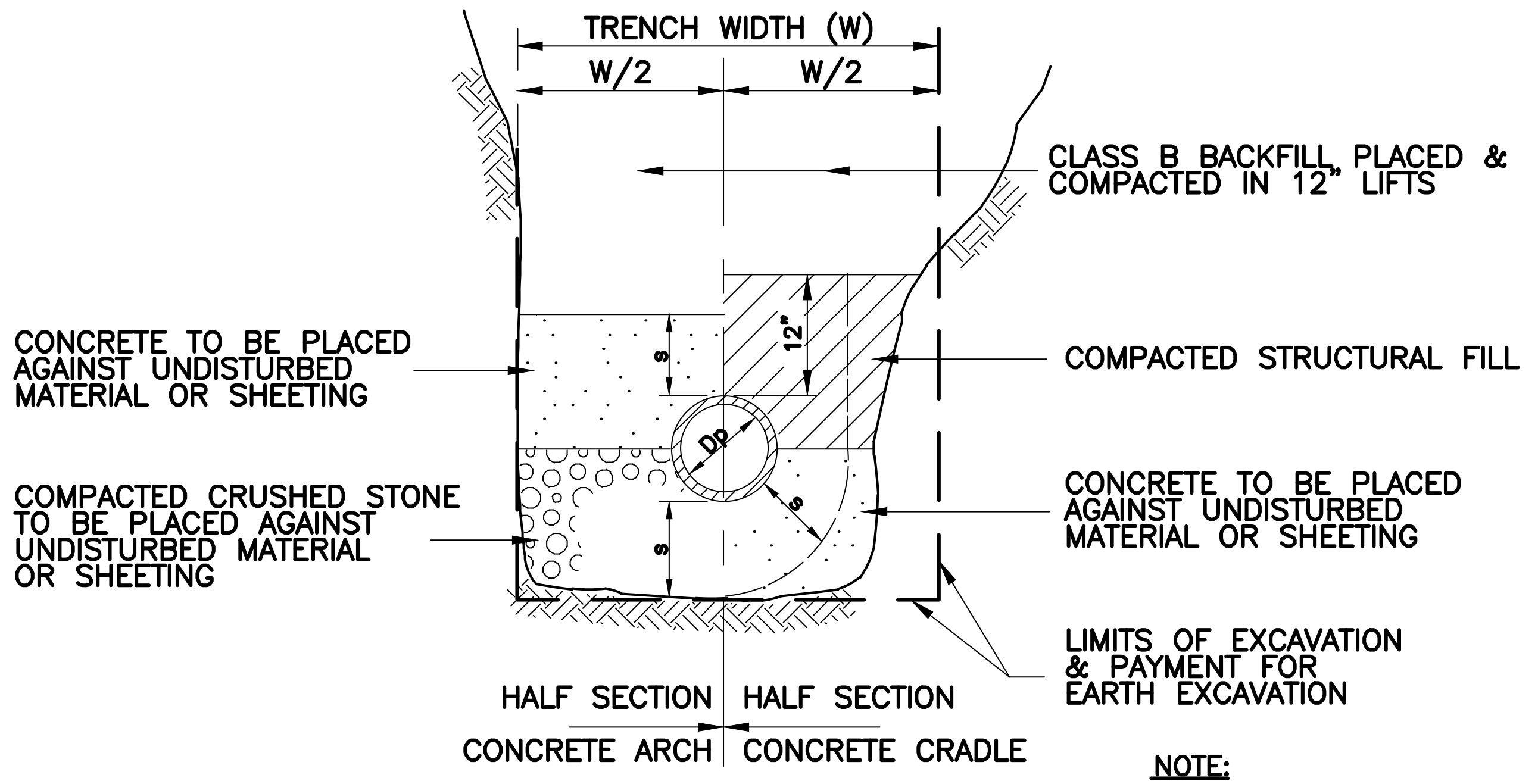
DEPTH TO INVERT	DIAMETER OF PIPE (DP)	MAXIMUM TRENCH WIDTH BELOW LINE OF NARROW TRENCH LIMIT (SHEETED OR UNSHEETED) (W)	MINIMUM CLEARANCE (S)
0-12'	TO 18"	5'	6"
0-12'	21"-24"	5'	7-1/2"
OVER 12'	TO 18"	7'	6"
OVER 12'	21"-24"	7'	7-1/2"

TABLE A


12"
PAYMENT LIMITS FOR ROCK EXCAVATION
4'-0" OR 5'-0"
2'-0" MAX.
PIPE
2'-0" MAX.
PRECAST CONCRETE MANHOLE BASE
12"

4'-0" OR 5'-0" DIA. MANHOLE PLAN

N.T.S.


TRENCH WIDTH (W)
W/2
W/2
CLASS B BACKFILL PLACED & COMPACTED IN 12" LIFTS
CONCRETE TO BE PLACED AGAINST UNDISTURBED MATERIAL OR SHEETING
12"
COMPACTED STRUCTURAL FILL
DP
S
S
S
COMPACTED CRUSHED STONE TO BE PLACED AGAINST UNDISTURBED MATERIAL OR SHEETING
CONCRETE TO BE PLACED AGAINST UNDISTURBED MATERIAL OR SHEETING
LIMITS OF EXCAVATION & PAYMENT FOR EARTH EXCAVATION
HALF SECTION CONCRETE ARCH
HALF SECTION CONCRETE CRADLE

CONCRETE ARCH & CRADLE

N.T.S.

NOTE:
1. IF CONCRETE ENCASEMENT IS REQUIRED, CONCRETE OF MINIMUM THICKNESS 'S' SHALL BE PLACED ALL AROUND PIPE.
2. SEE TABLE A FOR W, S, & DP DIMENSIONS.

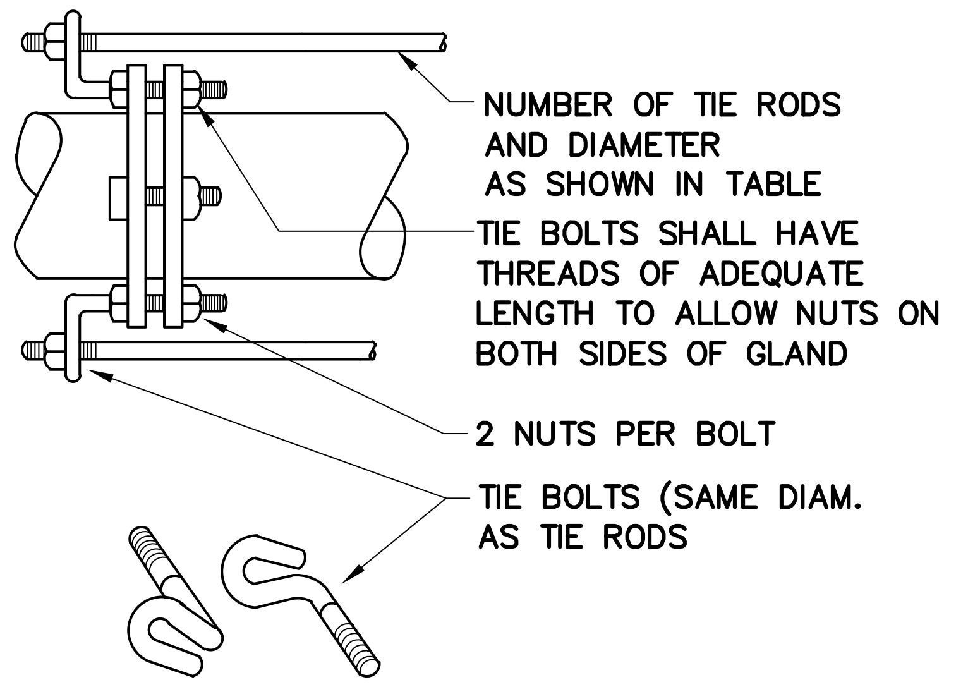
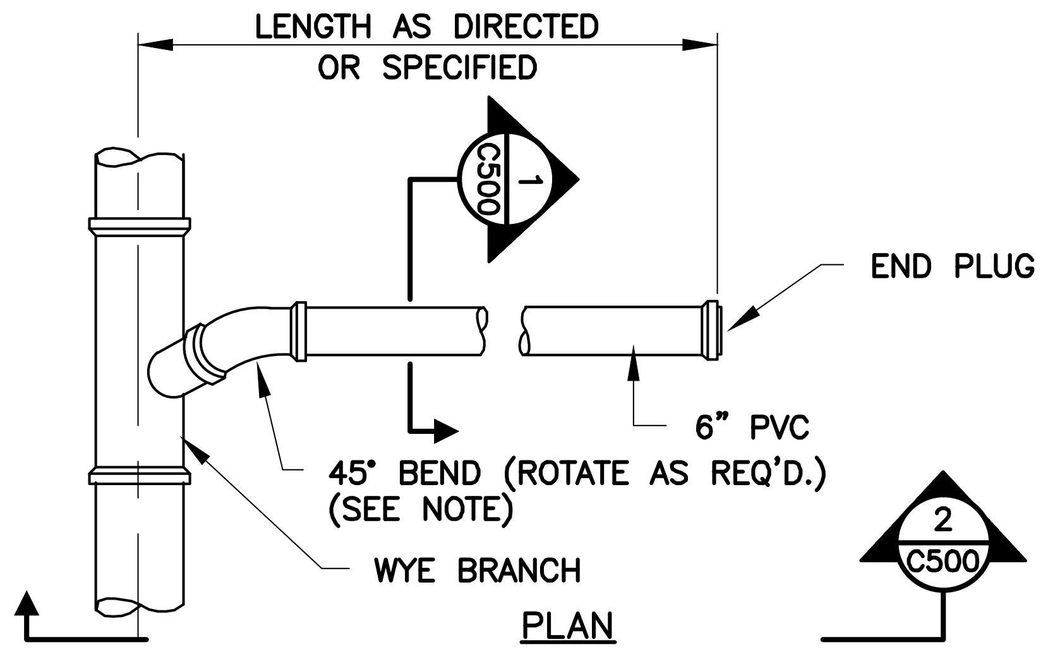

NUMBER OF TIE RODS AND DIAMETER AS SHOWN IN TABLE
TIE BOLTS SHALL HAVE THREADS OF ADEQUATE LENGTH TO ALLOW NUTS ON BOTH SIDES OF GLAND
2 NUTS PER BOLT
TIE BOLTS (SAME DIAM. AS TIE RODS

TABLE OF TIE RODS

PIPE SIZE	TIE ROD NO.	TIE ROD DIA.
6"	2	1/2"
8"	2	5/8"
10"	2	3/4"
12"	4	3/4"
16"	6	3/4"
20"	10	3/4"

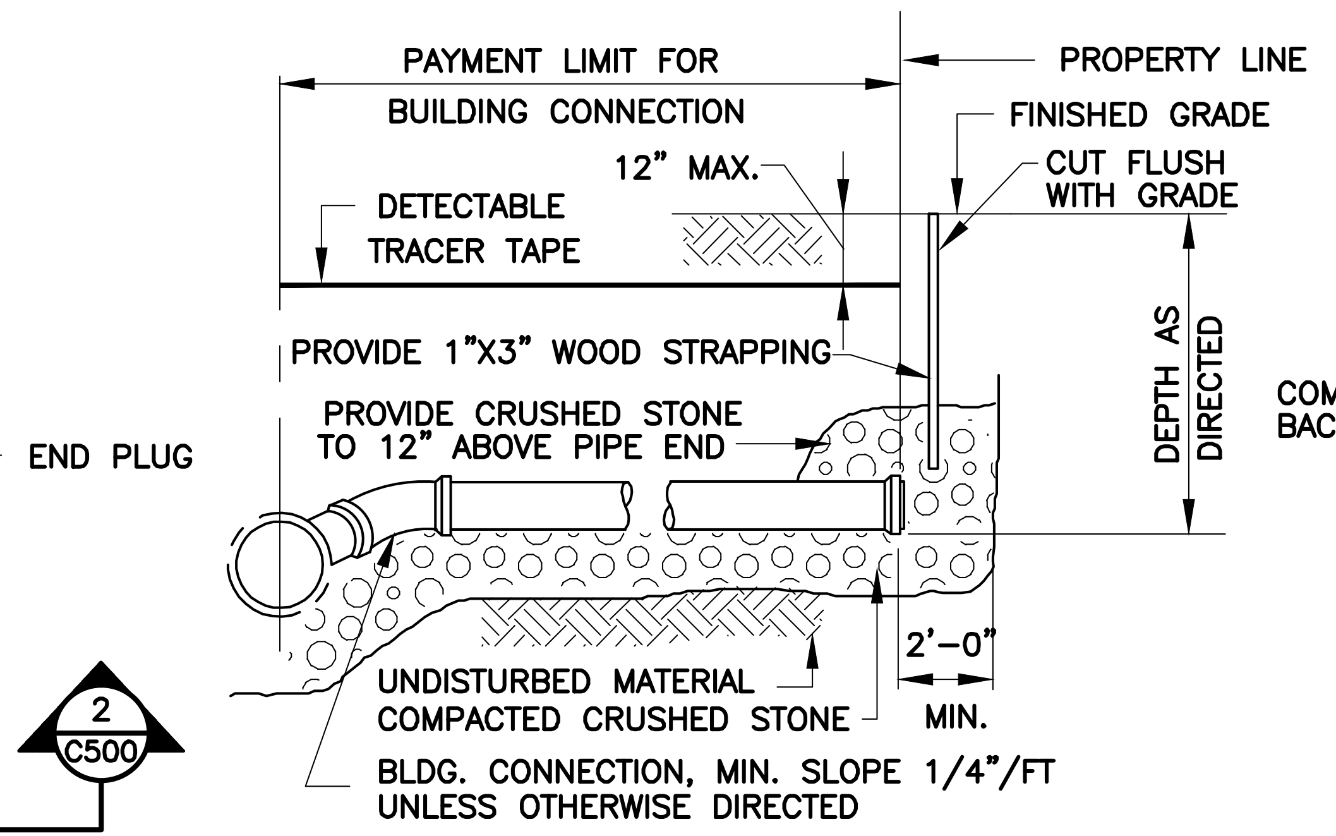
JOINT RESTRAINT DETAIL

N.T.S.


LENGTH AS DIRECTED OR SPECIFIED
1 C500
END PLUG
6" PVC
45° BEND (ROTATE AS REQ'D.) (SEE NOTE)
WYE BRANCH

PLAN

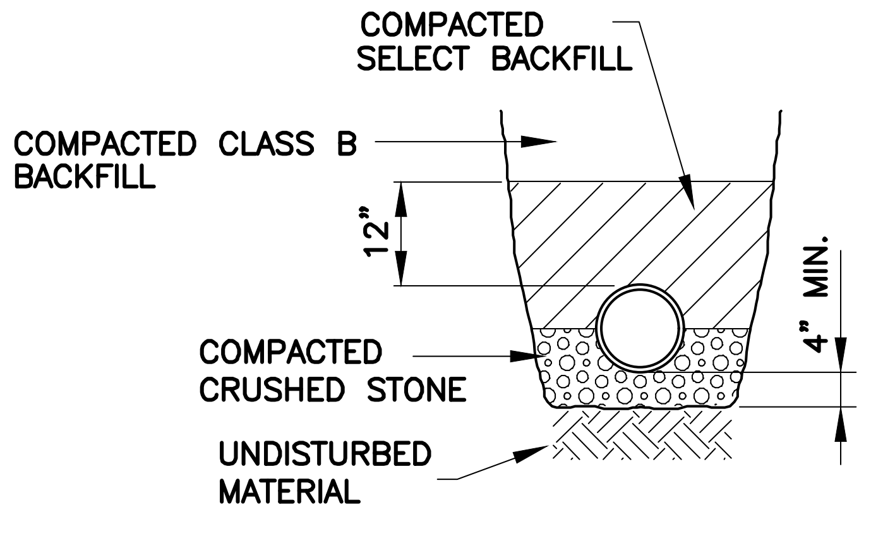
NOTES:
1. BE SURE THAT END OF BELL ON WYE BRANCH DOES NOT RUB ON UNDERSIDE OF 45° BEND.
2. IF BUILDING CONNECTION IS LESS THAN TWO FULL PIECES OF PIPE, SHORTER SECTION SHOULD BE CONNECTED AT WYE.


PAYMENT LIMIT FOR BUILDING CONNECTION
PROPERTY LINE
FINISHED GRADE
12" MAX.
CUT FLUSH WITH GRADE
DETECTABLE TRACER TAPE
PROVIDE 1"X3" WOOD STRAPPING
PROVIDE CRUSHED STONE TO 12" ABOVE PIPE END
DEPTH AS DIRECTED
2 C500
2'-0" MIN.
UNDISTURBED MATERIAL
COMPACTED CRUSHED STONE
BLDG. CONNECTION, MIN. SLOPE 1/4"/FT UNLESS OTHERWISE DIRECTED

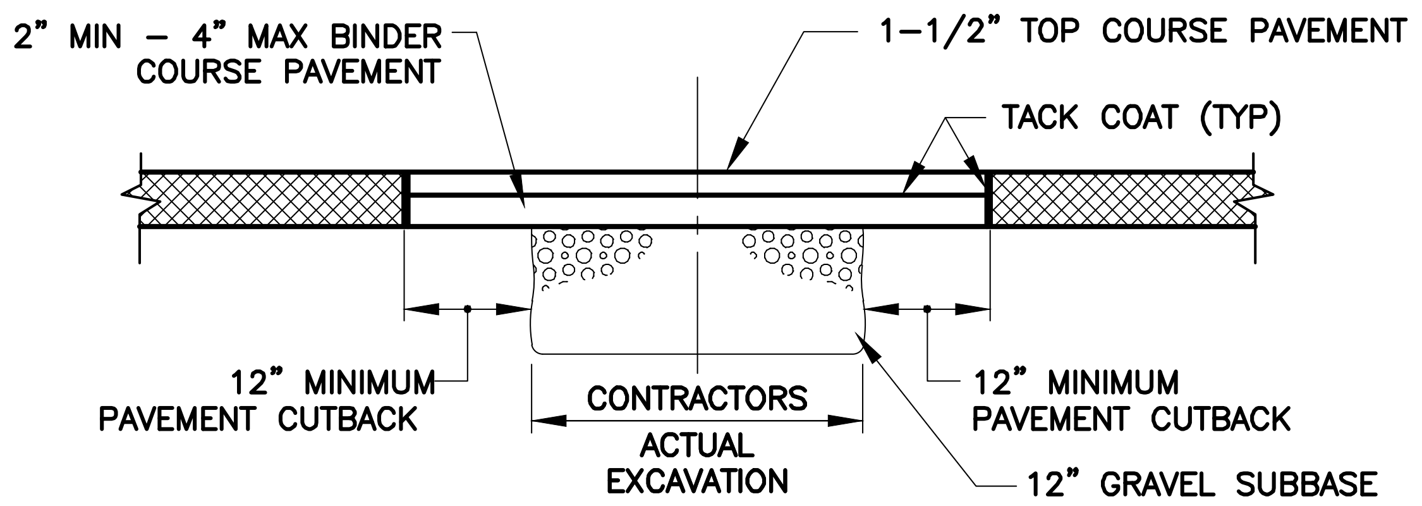
SECTION 2 C500

TYPICAL BUILDING CONNECTION DETAIL

N.T.S.



SECTION 1 C500


2" MIN - 4" MAX BINDER COURSE PAVEMENT
1-1/2" TOP COURSE PAVEMENT
TACK COAT (TYP)
12" MINIMUM PAVEMENT CUTBACK
CONTRACTORS ACTUAL EXCAVATION
12" MINIMUM PAVEMENT CUTBACK
12" GRAVEL SUBBASE

TRENCH WIDTH PAVEMENT FULL SECTION

LOCAL STREETS

PAVEMENT REPLACEMENT DETAILS

N.T.S.

NOTE:
SEE SPECIFICATION SECTION FOR TEMPORARY PAVEMENT AND COLD PLANING REQUIREMENTS FOR LOCAL STREETS.

Project:
TOWN OF NORTON,
MASSACHUSETTS

ELM STREET SEWER EXTENSION &
WATER MAIN IMPROVEMENTS PROJECT
NORTON WATER & SEWER DEPARTMENT
166 JOHN SCOTT BOULEVARD
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Consultants:

Revisions:

No.	Date	Description

COA:

Seal:
STEVEN K. PEDERSEN
CIVIL
No. 38295

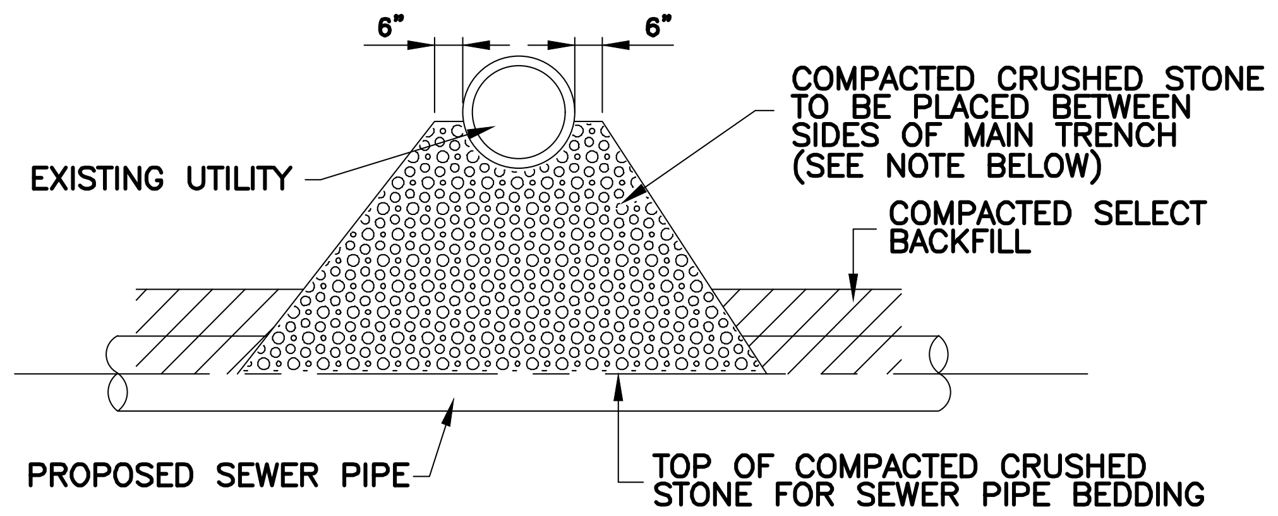
Issued For:
BIDDING

Scale: AS NOTED

Date: SEPTEMBER 2024
Drawn By: ALW
Reviewed By: RDH
Approved By: SKP
W&S Project No.: ENG23 - 0189
W&S File No.:

Drawing Title:
DETAILS I

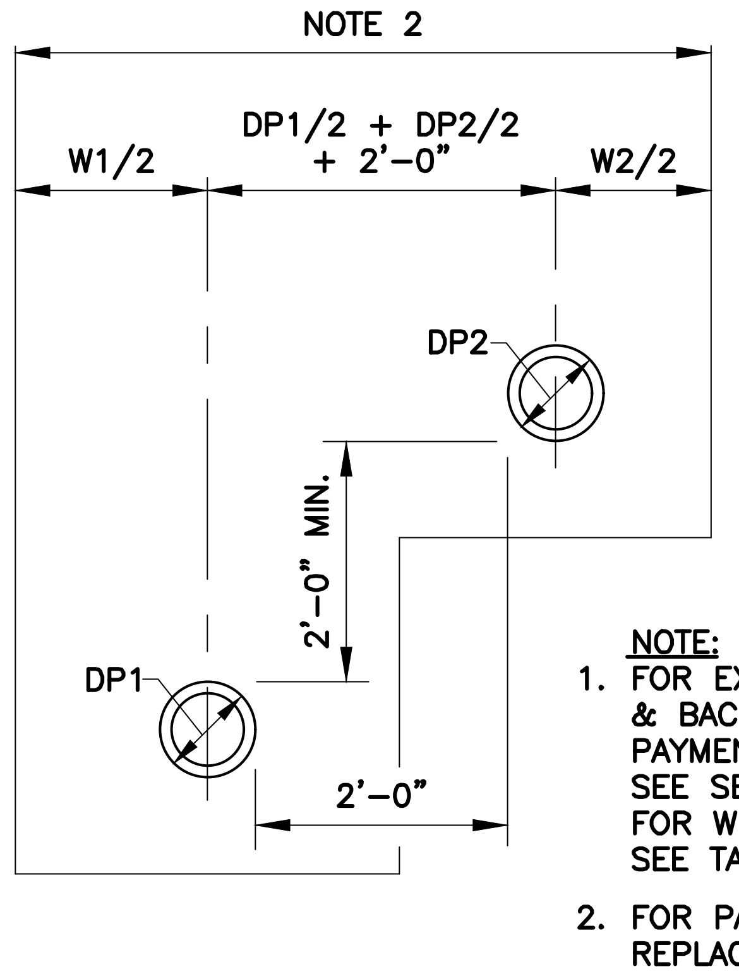
Sheet Number:
C500


6"
6"
EXISTING UTILITY
COMPACTED CRUSHED STONE TO BE PLACED BETWEEN SIDES OF MAIN TRENCH (SEE NOTE BELOW)
COMPACTED SELECT BACKFILL
PROPOSED SEWER PIPE
TOP OF COMPACTED CRUSHED STONE FOR SEWER PIPE BEDDING

UTILITY CROSSING DETAIL

N.T.S.

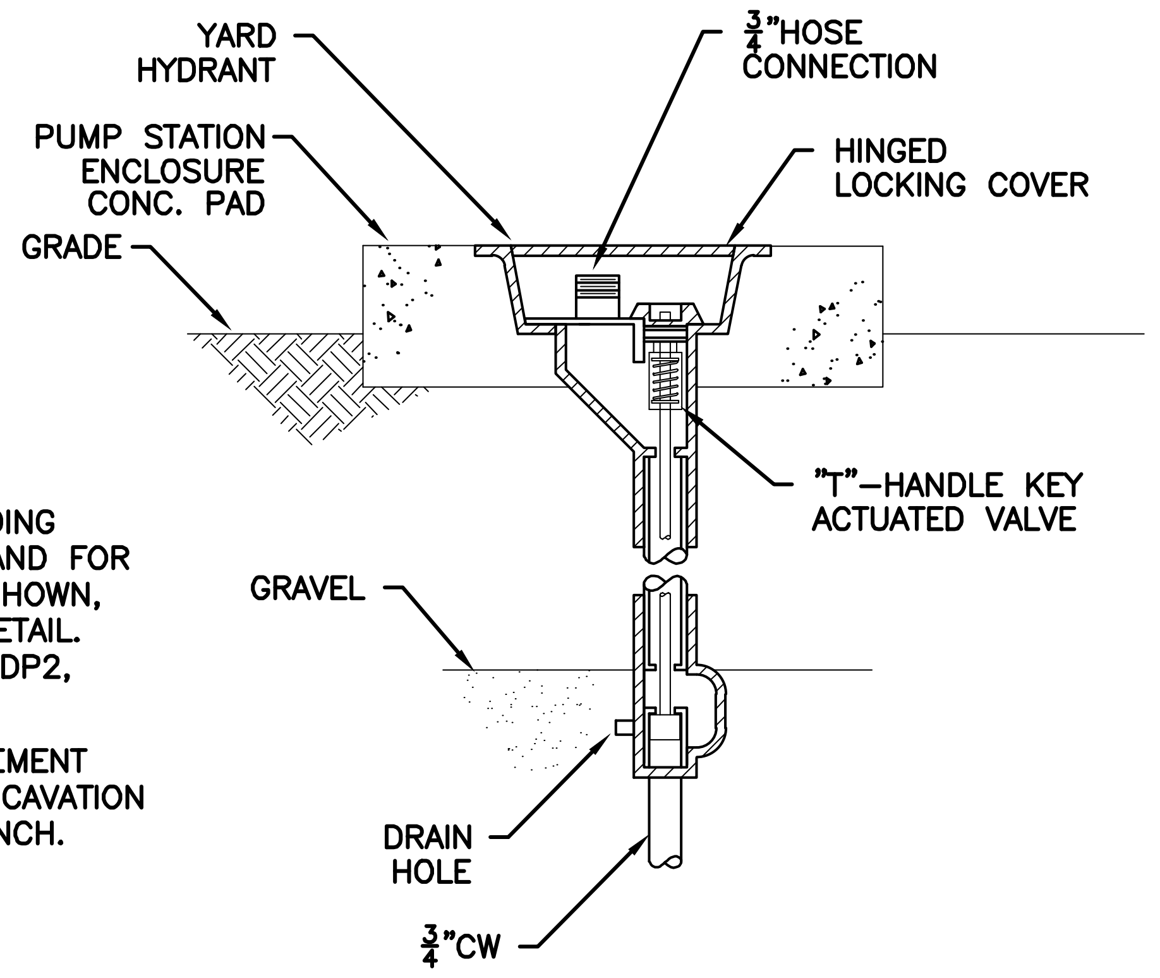
NOTE:
WHERE ASBESTOS CEMENT (A.C.) PIPE IS ENCOUNTERED CONTROLLED DENSITY FILL SHALL BE INSTALLED IN LIEU OF CRUSHED STONE



NOTE:
1. FOR EXCAVATION, BEDDING & BACKFILL DETAILS, AND FOR PAYMENT LIMITS NOT SHOWN, SEE SEWER TRENCH DETAIL. FOR W1, W2, DP1, & DP2, SEE TABLE A.
2. FOR PAYMENT OF PAVEMENT REPLACEMENT, THIS EXCAVATION CONSTITUTES ONE TRENCH.

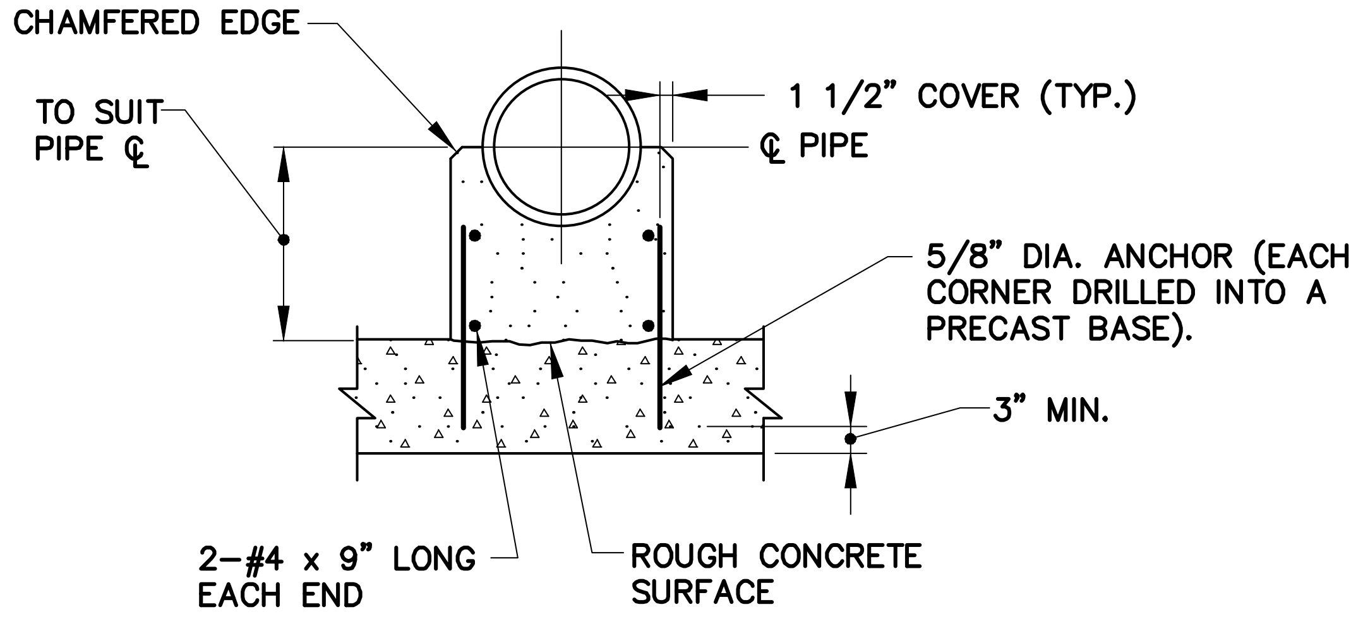
SEWER AND FORCE MAIN IN SAME TRENCH EXCAVATION & PAYMENT LIMITS

N.T.S.



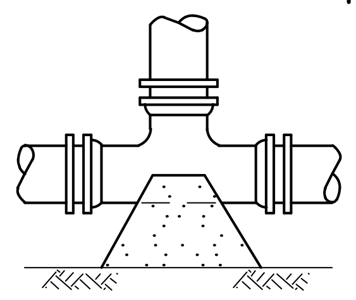
YARD HYDRANT DETAIL

N.T.S.



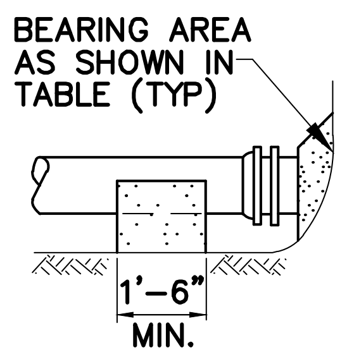
CONCRETE PIPE SUPPORT

N.T.S.



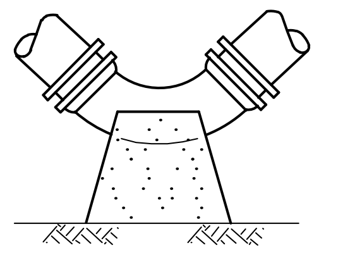
TEE DETAIL

(PLAN VIEW)



CAP DETAIL (PLUG SIMILAR)

(SECTION VIEW)



BEND DETAIL

(PLAN VIEW)

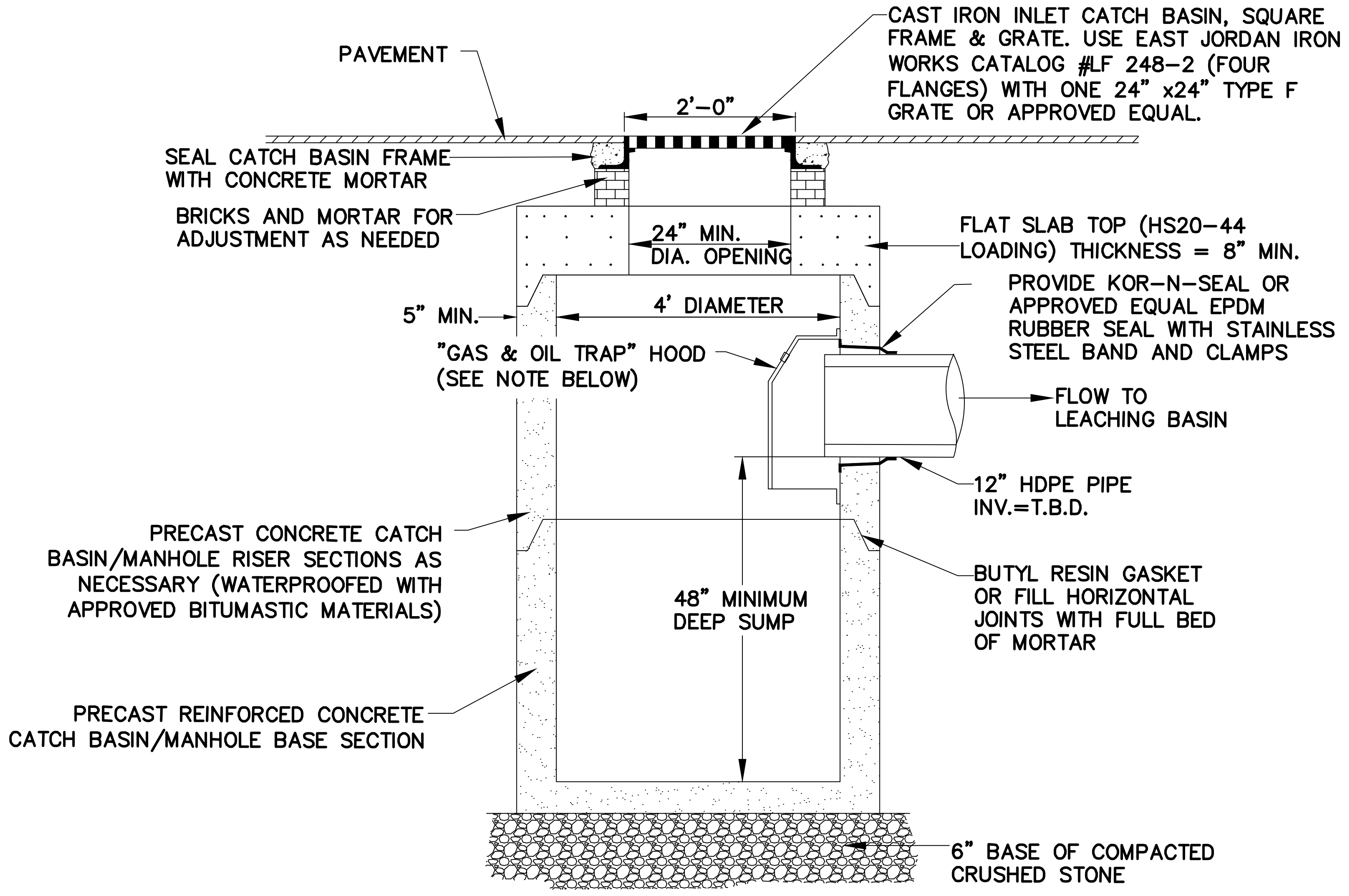
TABLE OF CONCRETE THRUST RESTRAINT MINIMUM BEARING AREAS IN SQUARE FEET AGAINST UNDISTURBED MATERIAL

SIZE OF MAIN	90° BENDS, TEES, CAPS AND PLUGS	45° BENDS AND WYES	22-1/2° BENDS	11-1/4° BENDS
6", 8"	5	4	2	2
10", 12"	12	9	5	2
16"	20	15	8	4
20"	36	24	13	7

NOTES:
1. ALL FITTINGS SHALL HAVE CONCRETE BACKING FOR THRUST RESTRAINT UNLESS OTHERWISE SPECIFIED.
2. CONTRACTOR SHALL USE CARE TO AVOID PLACEMENT OF CONCRETE ON THE FITTING JOINTS

CONCRETE THRUST RESTRAINT FOR FITTINGS

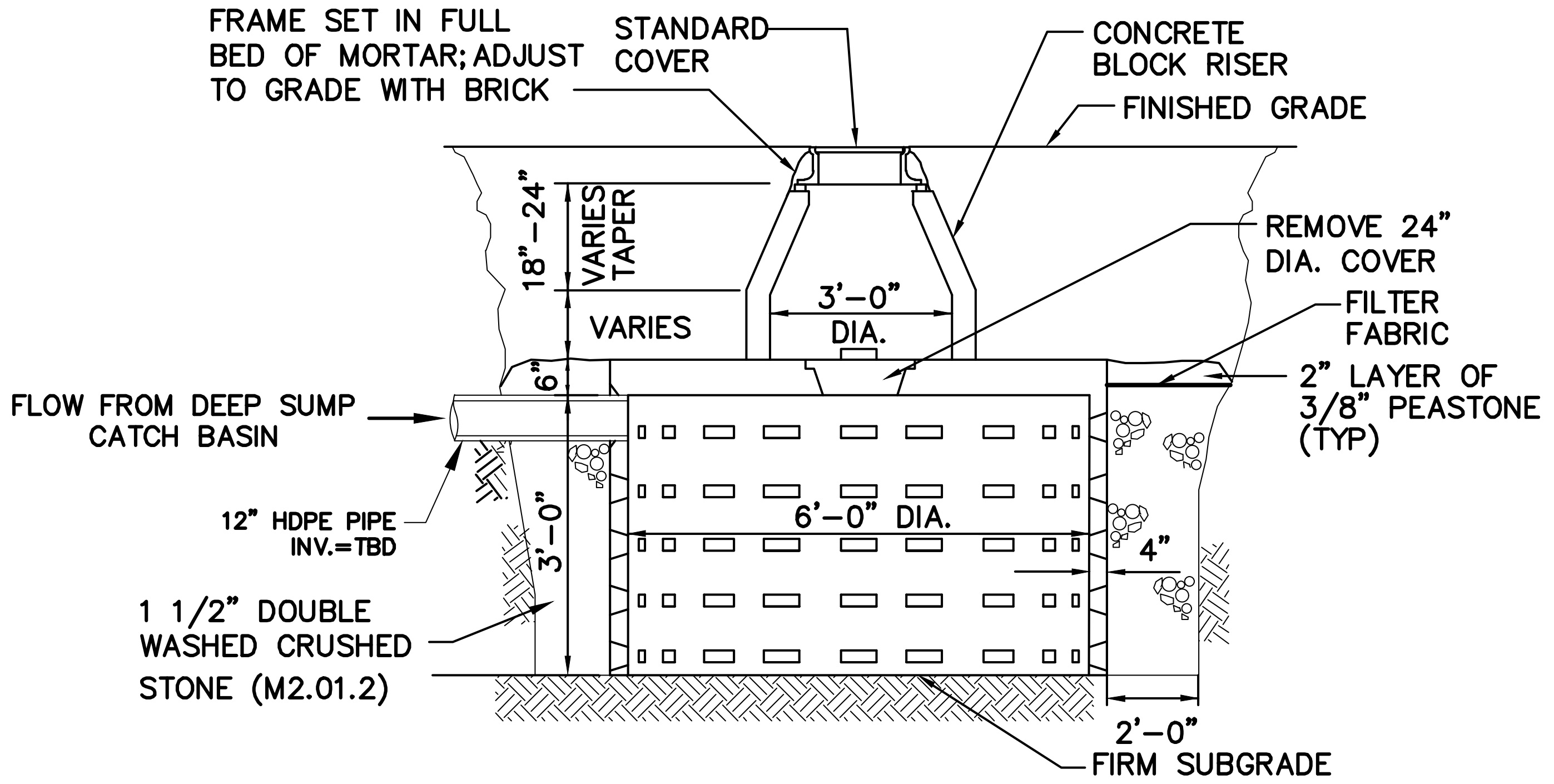
N.T.S.


PAVEMENT
2'-0"
CAST IRON INLET CATCH BASIN, SQUARE FRAME & GRATE. USE EAST JORDAN IRON WORKS CATALOG #LF 248-2 (FOUR FLANGES) WITH ONE 24" x24" TYPE F GRATE OR APPROVED EQUAL.
SEAL CATCH BASIN FRAME WITH CONCRETE MORTAR
BRICKS AND MORTAR FOR ADJUSTMENT AS NEEDED
24" MIN. DIA. OPENING
FLAT SLAB TOP (HS20-44 LOADING) THICKNESS = 8" MIN.
5" MIN.
4' DIAMETER
PROVIDE KOR-N-SEAL OR APPROVED EQUAL EPDM RUBBER SEAL WITH STAINLESS STEEL BAND AND CLAMPS
"GAS & OIL TRAP" HOOD (SEE NOTE BELOW)
FLOW TO LEACHING BASIN
12" HDPE PIPE INV.=T.B.D.
PRECAST CONCRETE CATCH BASIN/MANHOLE RISER SECTIONS AS NECESSARY (WATERPROOFED WITH APPROVED BITUMASTIC MATERIALS)
48" MINIMUM DEEP SUMP
BUTYL RESIN GASKET OR FILL HORIZONTAL JOINTS WITH FULL BED OF MORTAR
PRECAST REINFORCED CONCRETE CATCH BASIN/MANHOLE BASE SECTION
6" BASE OF COMPACTED CRUSHED STONE

DEEP SUMP CATCH BASIN

N.T.S.

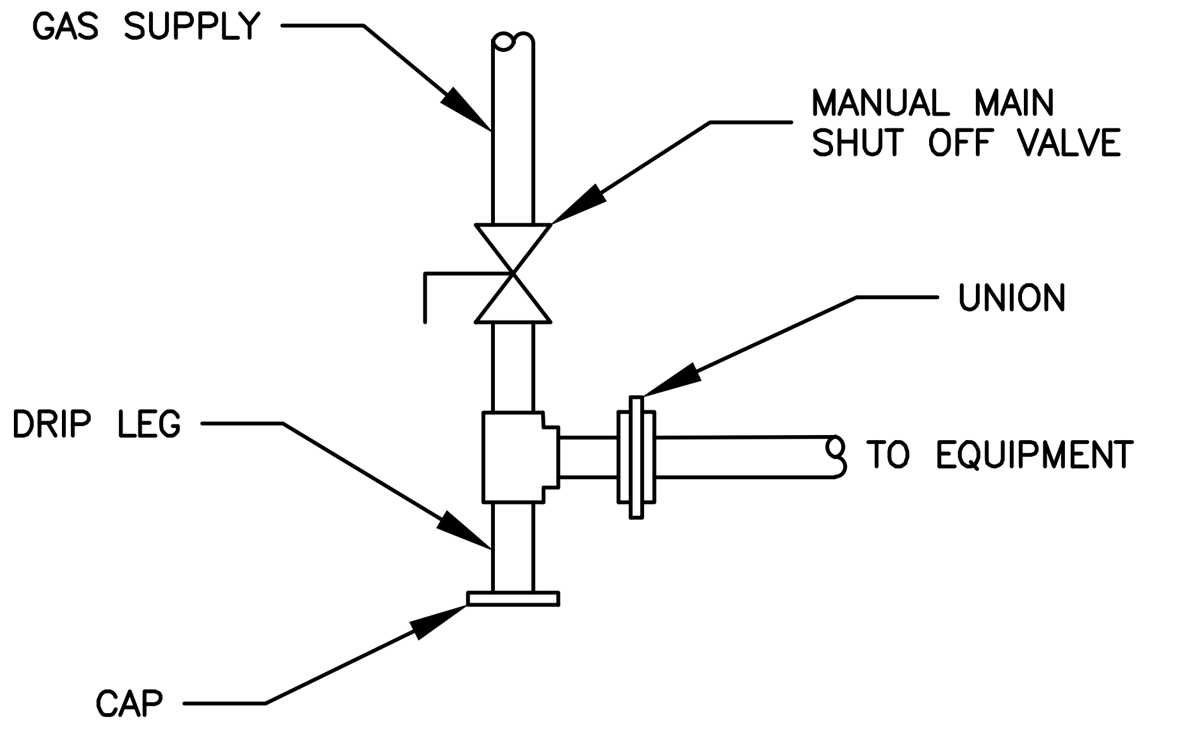
NOTE:
1. FOR OIL AND GAS TRAP HOOD, USE "THE SNOUT" BY BEST MANAGEMENT PRODUCTS, INC. OR APPROVED EQUAL. SIZE PER MANUFACTURER'S SPECIFICATIONS.



SINGLE PRECAST LEACHING BASIN

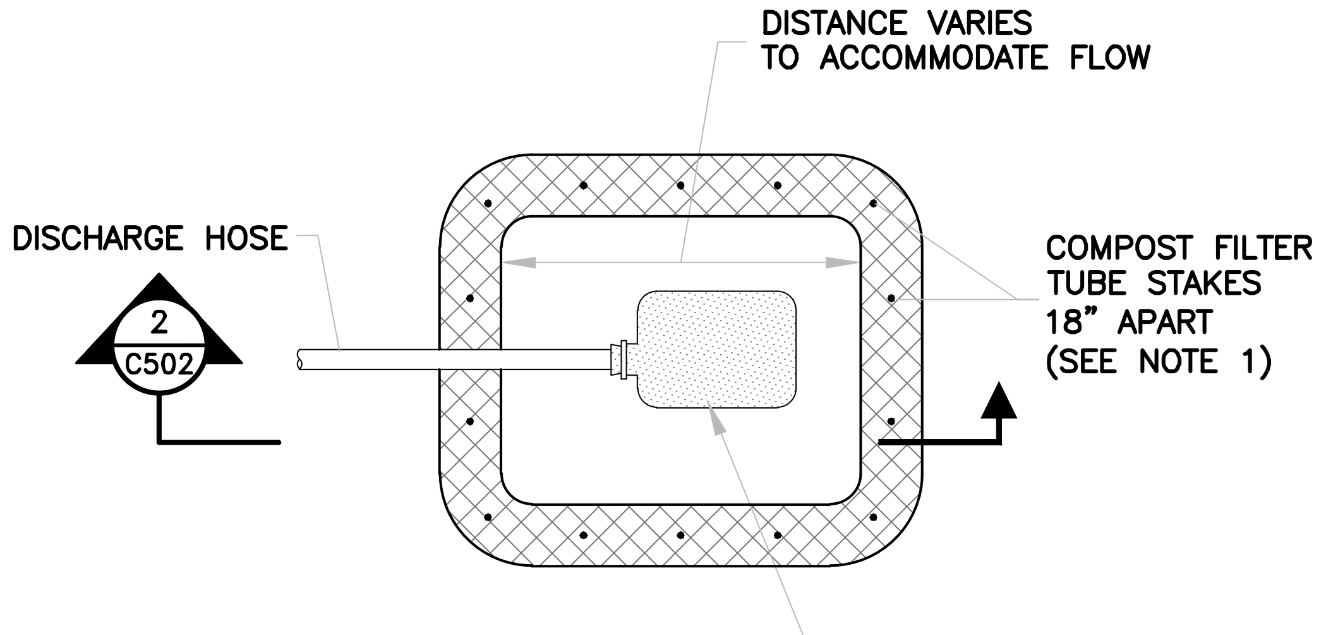
N.T.S.

NOTES:
1. CONCRETE-5000 PSI MINIMUM STRENGTH @28 DAYS
2. STEEL REINFORCEMENT- ASTM A-615 GRADE 60
3. COVER TO STEEL, MINUMUM 2"
4. DESIGN LOADING- AASHTO HS-20

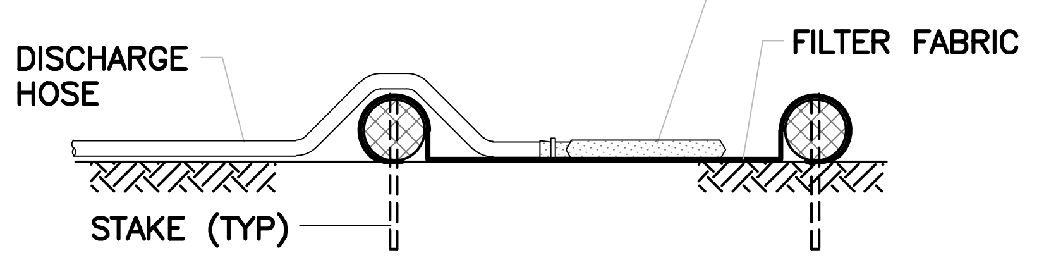


GAS PIPING EQUIPMENT CONNECTION DETAIL

N.T.S.


DISTANCE VARIES TO ACCOMMODATE FLOW
DISCHARGE HOSE
2
C502
COMPOST FILTER TUBE STAKES 18" APART (SEE NOTE 1)
SEDIMENT COLLECTION BAG

PLAN

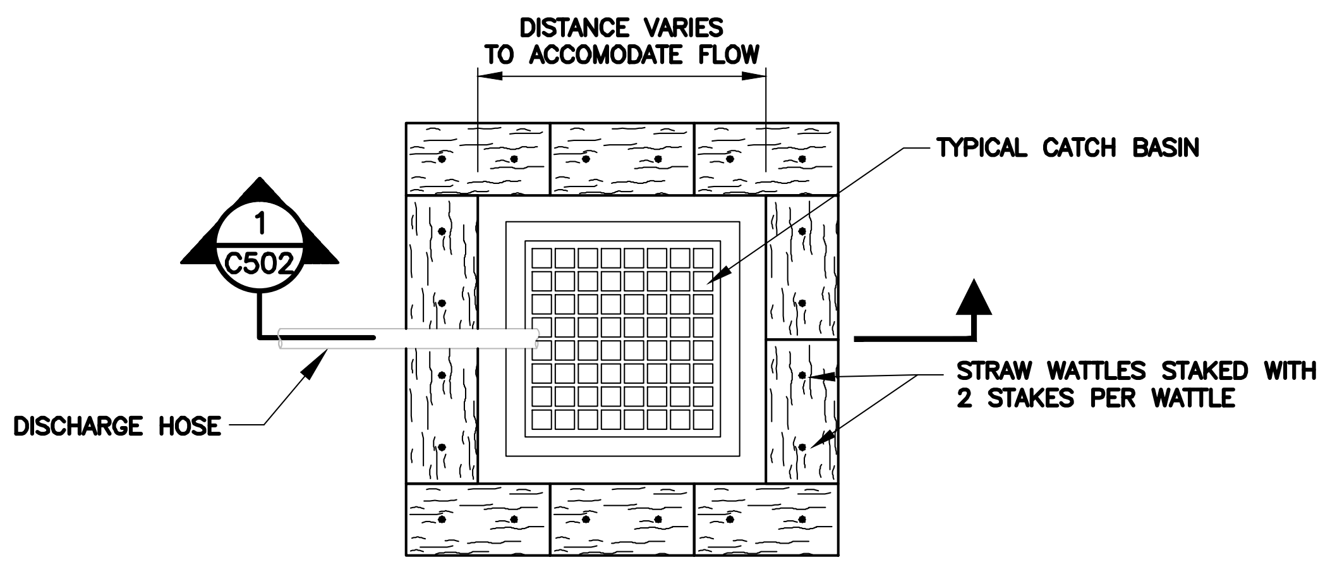


SECTION 2 C502

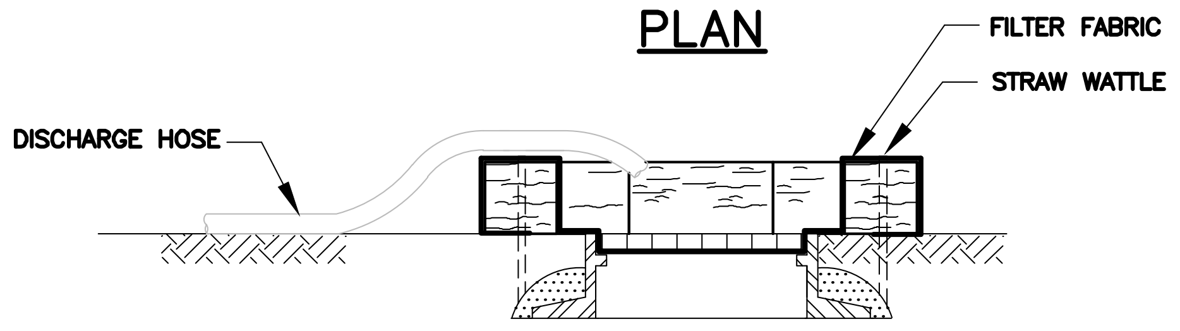
NOTE:
1. WHEN STAKING IS NOT POSSIBLE, SUCH AS WHEN TUBES MUST BE PLACED ON PAVEMENT, HEAVY CONCRETE OR CINDER BLOCKS CAN BE USED BEHIND TUBES UP TO 5 FT. APART OR AS REQUIRED TO SECURE TUBES IN PLACE.

DEWATERING DISCHARGE DISPOSAL DETAIL

N.T.S.


DISTANCE VARIES TO ACCOMODATE FLOW
1
C502
TYPICAL CATCH BASIN
STRAW WATTLES STAKED WITH 2 STAKES PER WATTLE
DISCHARGE HOSE

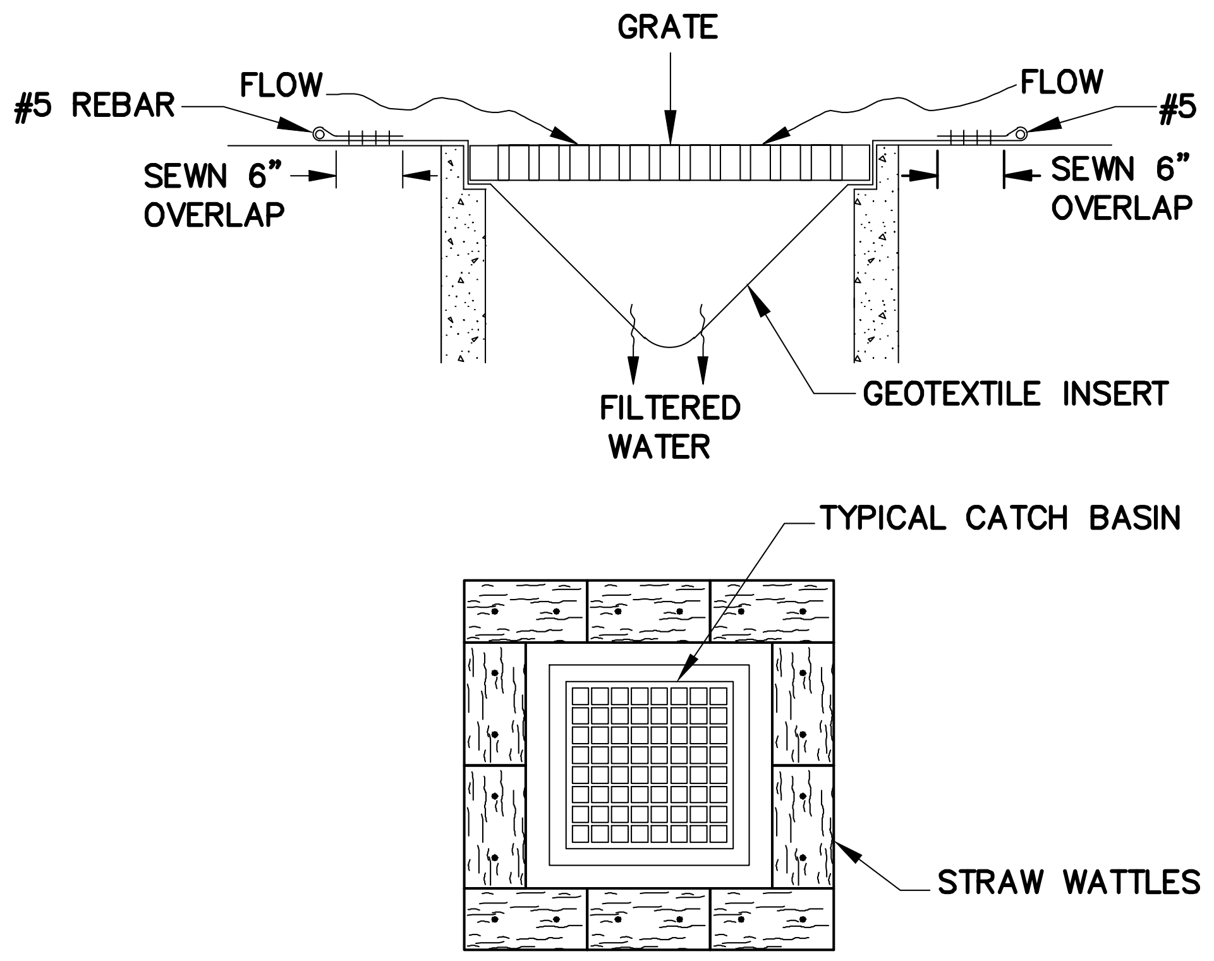
PLAN



SECTION 1 C502

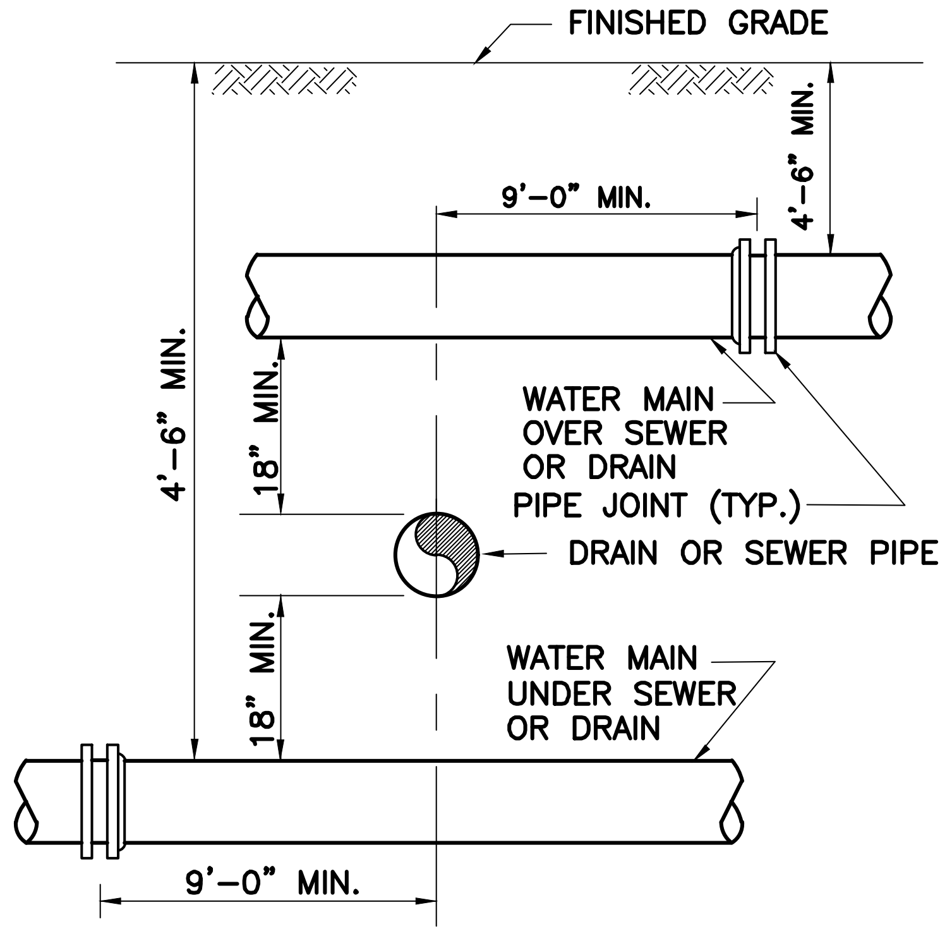
DEWATERING DISCHARGE DISPOSAL TO CATCH BASIN DETAIL

N.T.S.



CATCH BASIN PROTECTION DETAIL

N.T.S.



SEWER OR DRAIN CROSSING DETAIL

N.T.S.

Project:
TOWN OF NORTON,
MASSACHUSETTS

ELM STREET SEWER EXTENSION &
WATER MAIN IMPROVEMENTS PROJECT
NORTON WATER & SEWER DEPARTMENT
166 JOHN SCOTT BOULEVARD
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Consultants:

Revisions:

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STEVEN K. PEDERSEN
CIVIL
No. 38295

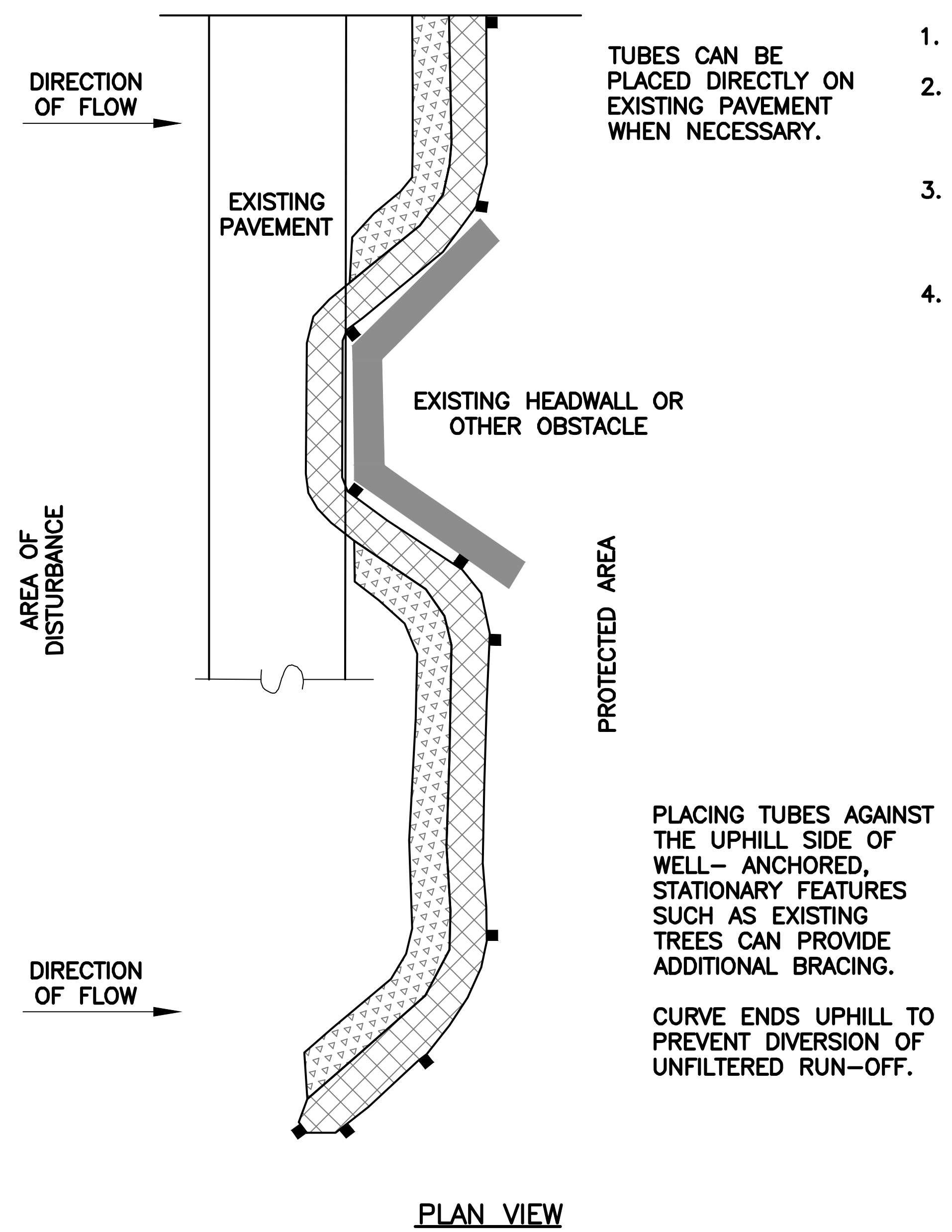
Issued For:
BIDDING

Scale: AS NOTED

Date: SEPTEMBER 2024
Drawn By: ALW
Reviewed By: RDH
Approved By: SKP
W&S Project No.: ENG23 - 0189
W&S File No.:

Drawing Title:
DETAILS II

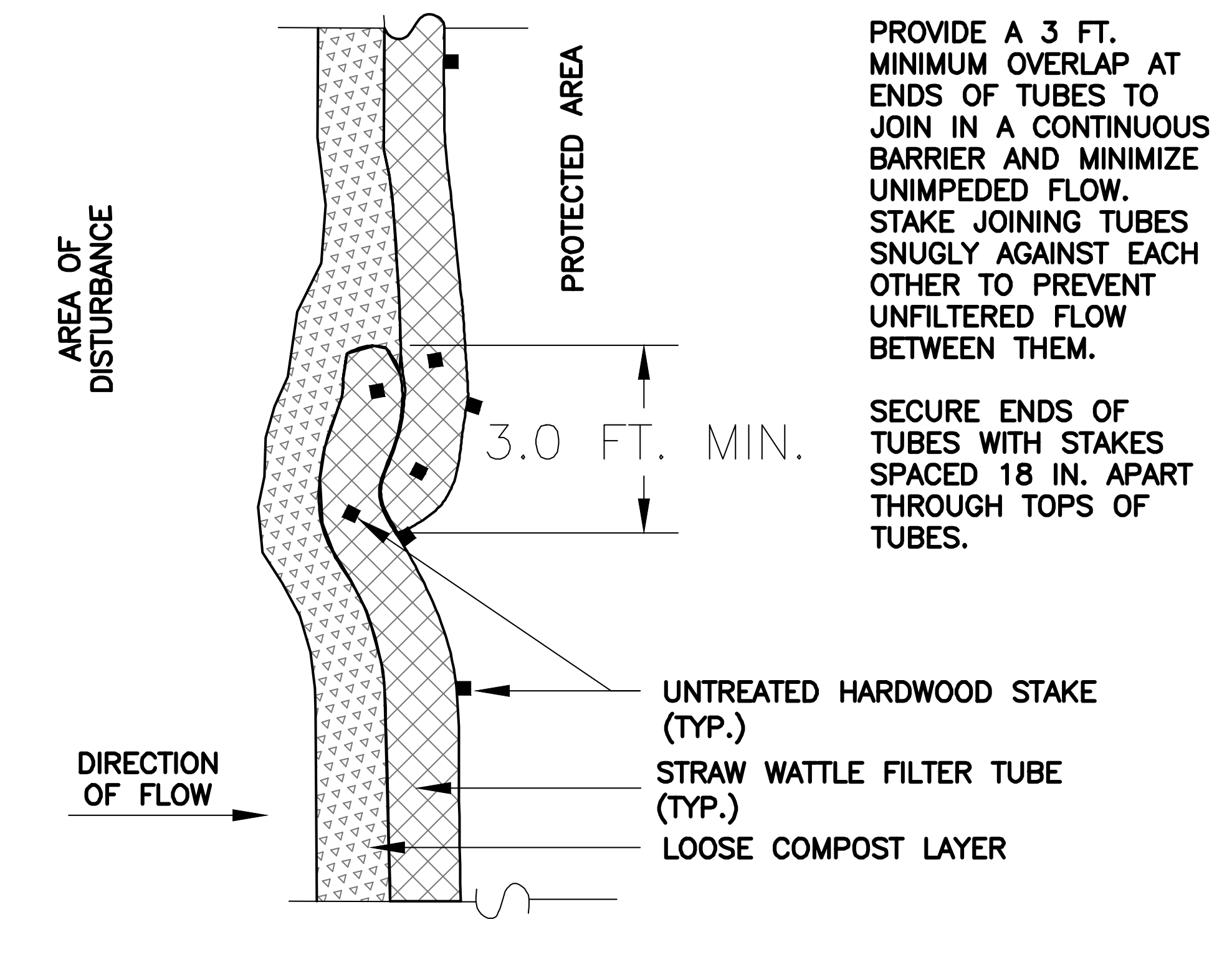
Sheet Number:
C501


DIRECTION OF FLOW
TUBES CAN BE PLACED DIRECTLY ON EXISTING PAVEMENT WHEN NECESSARY.
EXISTING PAVEMENT
EXISTING HEADWALL OR OTHER OBSTACLE
AREA OF DISTURBANCE
PROTECTED AREA
PLACING TUBES AGAINST THE UPHILL SIDE OF WELL- ANCHORED, STATIONARY FEATURES SUCH AS EXISTING TREES CAN PROVIDE ADDITIONAL BRACING.
DIRECTION OF FLOW
CURVE ENDS UPHILL TO PREVENT DIVERSION OF UNFILTERED RUN-OFF.

PLAN VIEW

GENERAL NOTES:

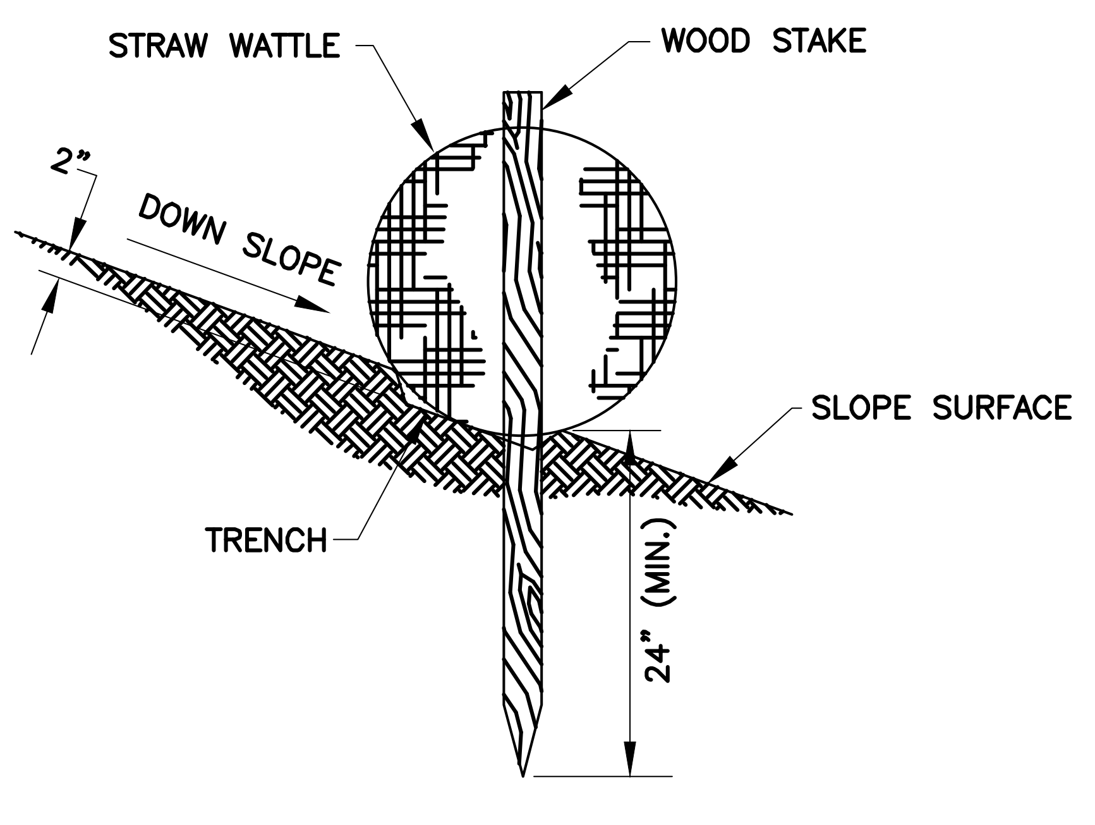
1. STRAW WATTLE SHALL BE 12" DIAMETER (NOMINAL).
2. BEGIN AT THE LOCATION WHERE THE WATTLE IS TO BE INSTALLED BY EXCAVATING A 2-3" DEEP X 9" WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UPSLOPE FROM THE ANCHOR TRENCH.
3. PLACE THE WATTLE IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE WATTLE ON THE UPHILL SIDE. ADJACENT WATTLES SHOULD TIGHTLY ABUT.
4. SECURE THE WATTLE WITH 18-24" STAKES EVERY 3-4' AND WITH A STAKE ON EACH END. STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE WATTLE LEAVING AT LEAST 2-3" OF STAKE EXTENDING ABOVE THE WATTLE. STAKES SHOULD BE DRIVEN PERPENDICULAR TO THE SLOPE FACE.


AREA OF DISTURBANCE
PROTECTED AREA
3.0 FT. MIN.
PROVIDE A 3 FT. MINIMUM OVERLAP AT ENDS OF TUBES TO JOIN IN A CONTINUOUS BARRIER AND MINIMIZE UNIMPEDED FLOW. STAKE JOINING TUBES SNUGLY AGAINST EACH OTHER TO PREVENT UNFILTERED FLOW BETWEEN THEM.
SECURE ENDS OF TUBES WITH STAKES SPACED 18 IN. APART THROUGH TOPS OF TUBES.
DIRECTION OF FLOW
UNTREATED HARDWOOD STAKE (TYP.)
STRAW WATTLE FILTER TUBE (TYP.)
LOOSE COMPOST LAYER

PLAN VIEW - JOIN DETAIL

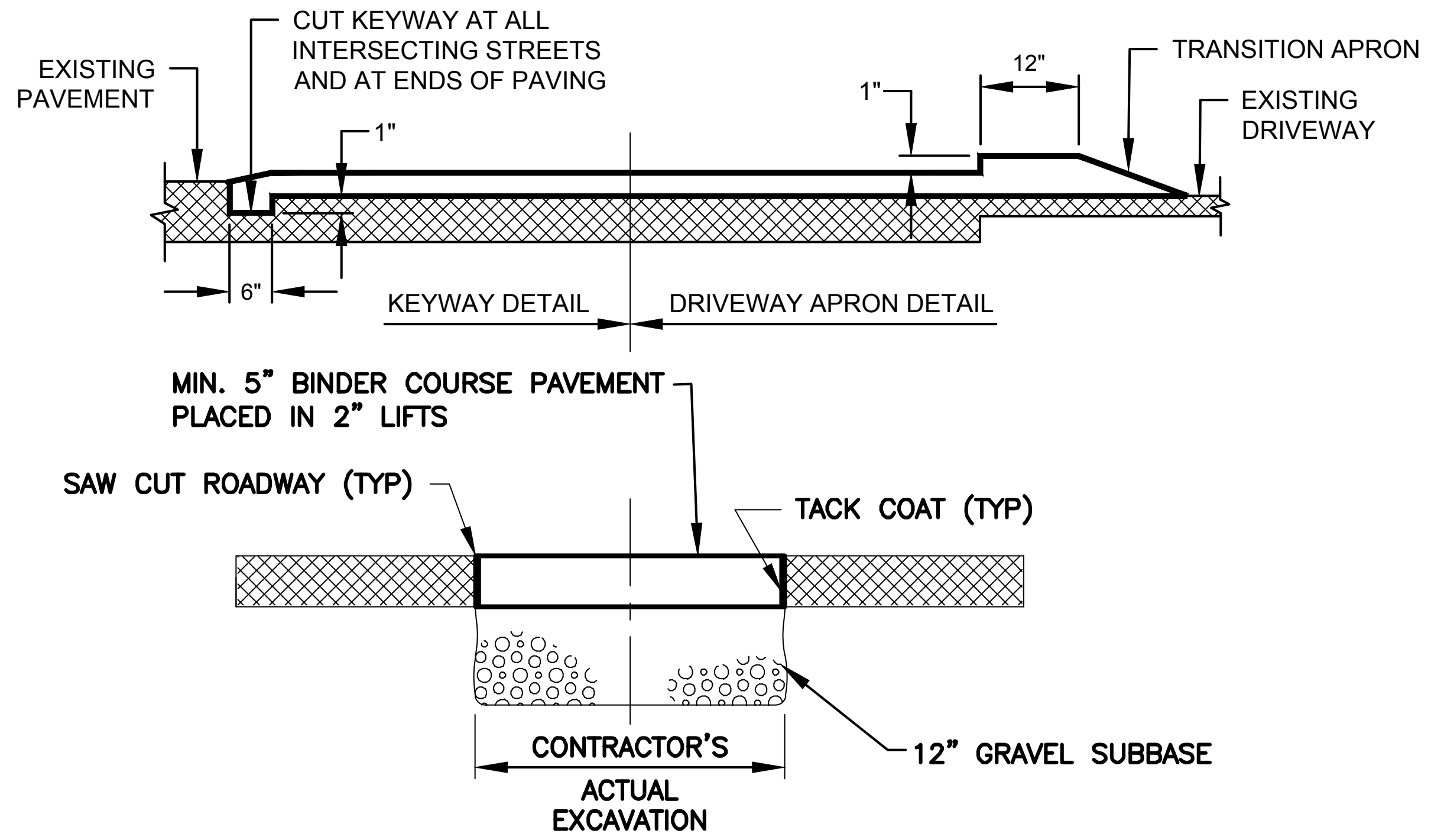
STRAW WATTLE DETAIL

NOT TO SCALE



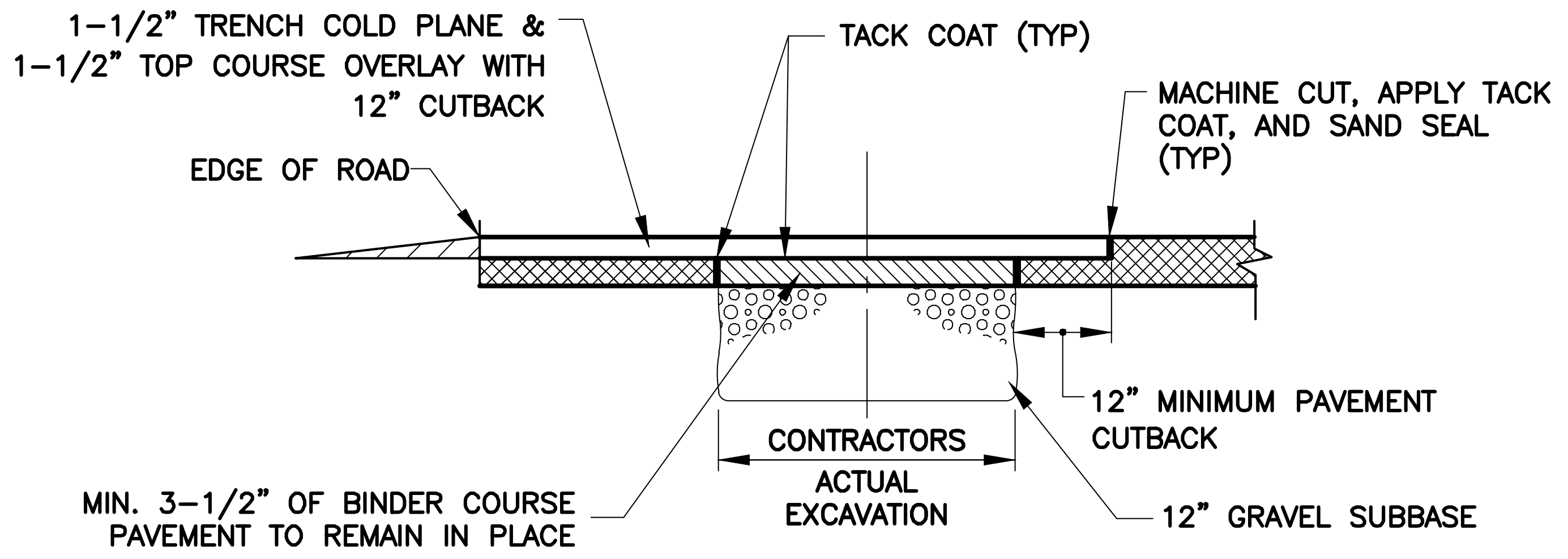
STAKE DETAIL (ON BARE SOIL)

N.T.S.



TYPE 1: TEMPORARY TRENCH PAVEMENT

N.T.S.


1-1/2" TRENCH COLD PLANE & 1-1/2" TOP COURSE OVERLAY WITH 12" CUTBACK
TACK COAT (TYP)
MACHINE CUT, APPLY TACK COAT, AND SAND SEAL (TYP)
EDGE OF ROAD
12" MINIMUM PAVEMENT CUTBACK
CONTRACTORS ACTUAL EXCAVATION
MIN. 3-1/2" OF BINDER COURSE PAVEMENT TO REMAIN IN PLACE
12" GRAVEL SUBBASE

TYPE 2: PERMANENT TRENCH PAVEMENT

N.T.S.

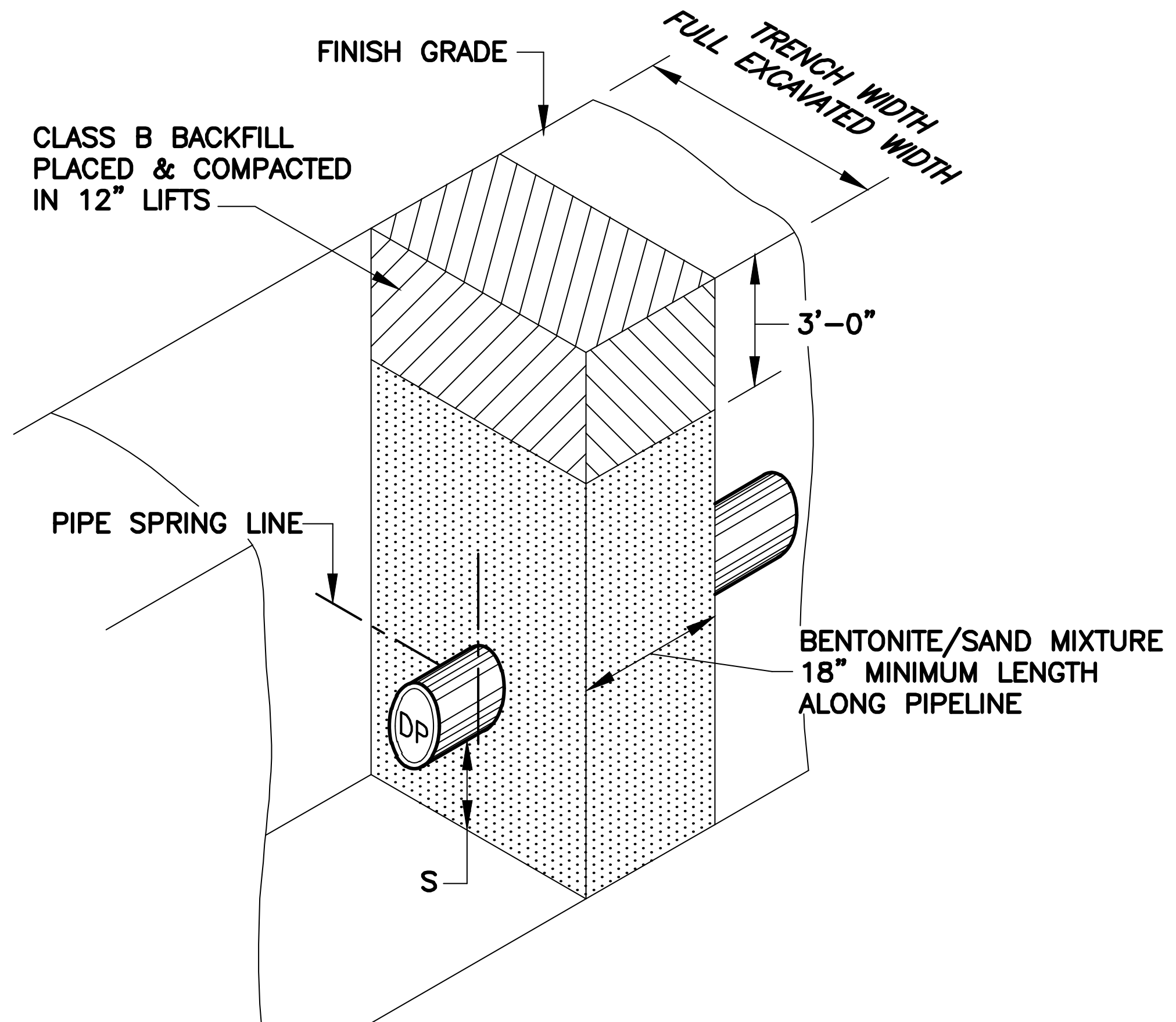
REQUIRED LENGTH OF RESTRAINED JOINTS FROM FITTINGS (FEET)

PIPE SIZE	90° BEND	45° BEND OR WYE BRANCH	22 1/2° BEND	11 1/4° BEND	PLUG, CAP OR IN-LINE VALVE	TEE (BRANCH)
6"	25 (30.5)	10.5 (12.5)	5 (6)	2.5 (3)	43 (64)	34 (51)
8"	33 (40)	13.5 (16.5)	6.5 (8)	3 (4)	55 (82)	47 (70)
10"	40 (48.5)	16.5 (20)	8 (9.5)	4 (5)	67 (100)	58 (87)
12"	47 (56.5)	19.5 (23.5)	9.5 (11.5)	4.5 (5.5)	79 (118)	70 (105)
16"	59.5 (72)	24.5 (30)	12 (14.5)	6 (7)	101 (152)	92 (139)
20"	72 (86.5)	30 (36)	14.5 (17)	7 (8.5)	123 (184)	114 (171)
24"	84 (100)	35 (41)	16.5 (20)	8 (10)	144 (216)	134 (202)
30"	100 (120)	41 (50)	20 (24)	10 (12)	174 (261)	165 (247)

NOTES:

1. RESTRAINED LENGTHS LISTED IN PARENTHESES ARE FOR PIPE WRAPPED IN POLYETHYLENE. THE OTHER ASSOCIATED LENGTHS ARE FOR PLAIN UNWRAPPED DUCTILE IRON PIPE.
2. THE CONTRACTOR SHALL USE THIS TABLE IN CONJUNCTION WITH THE APPROPRIATE PIPE SPECIFICATION SECTION.

RESTRAINED JOINT TABLE

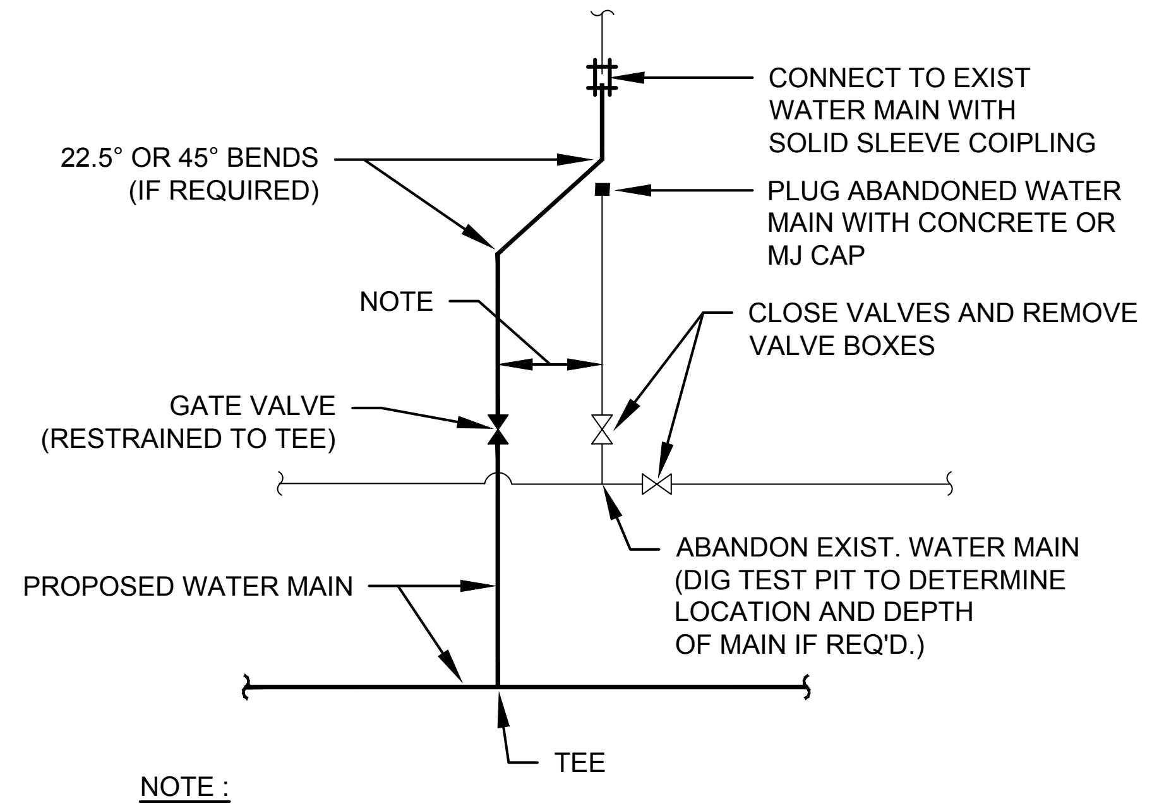

FINISH GRADE
TRENCH WIDTH
FULL EXCAVATED WIDTH
CLASS B BACKFILL PLACED & COMPACTED IN 12" LIFTS
3'-0"
PIPE SPRING LINE
DP
BENTONITE/SAND MIXTURE 18" MINIMUM LENGTH ALONG PIPELINE
S

NOTES:

1. DAM TO BE PLACED AGAINST UNDISTURBED MATERIAL OR SHEETING
2. SEE BENTONITE DAM SPECIFICATION SECTION 02347

BENTONITE DAM DETAIL

N.T.S.

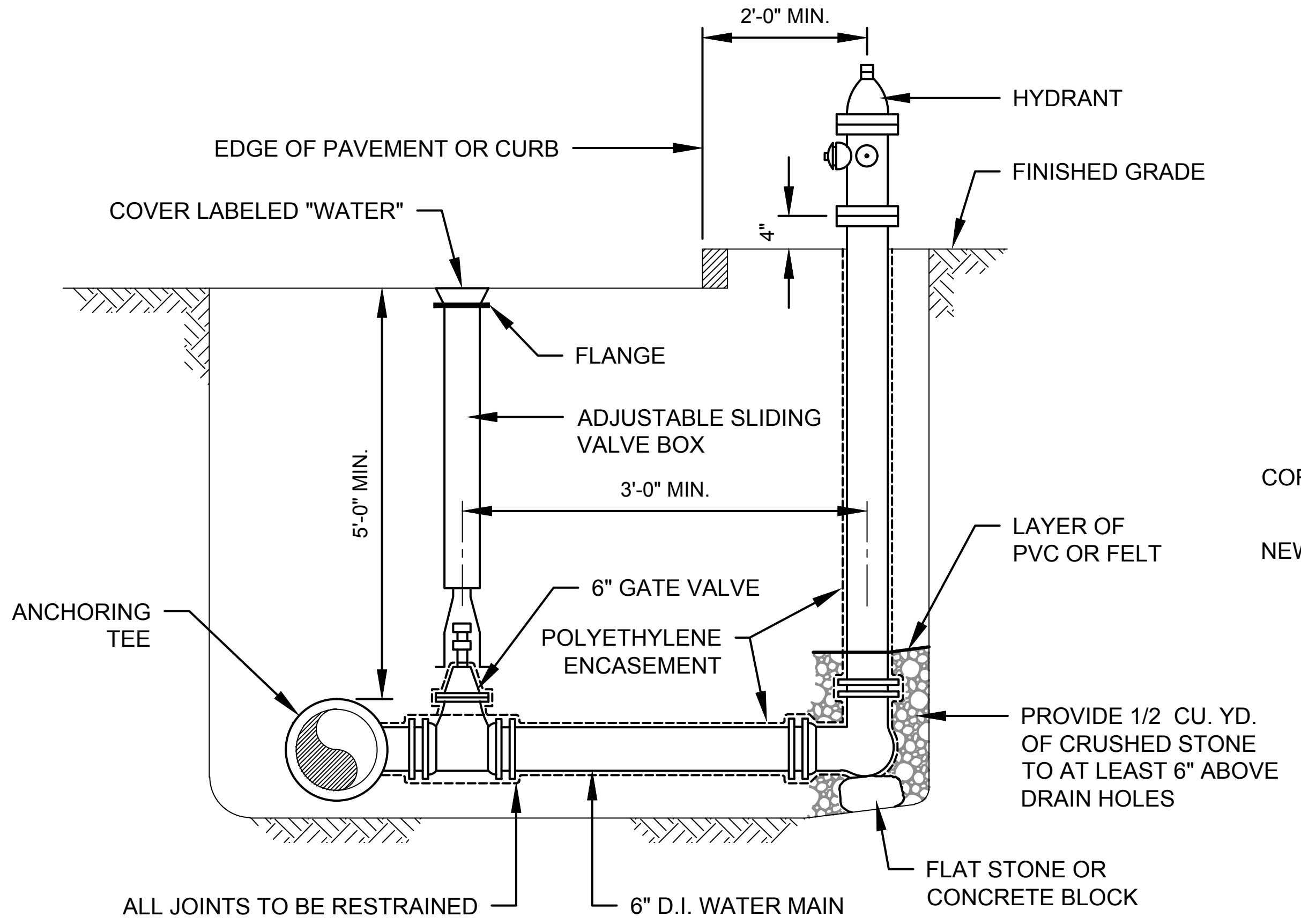

CONNECT TO EXIST WATER MAIN WITH SOLID SLEEVE COIPLING
22.5° OR 45° BENDS (IF REQUIRED)
PLUG ABANDONED WATER MAIN WITH CONCRETE OR MJ CAP
NOTE
CLOSE VALVES AND REMOVE VALVE BOXES
GATE VALVE (RESTRAINED TO TEE)
ABANDON EXIST. WATER MAIN (DIG TEST PIT TO DETERMINE LOCATION AND DEPTH OF MAIN IF REQ'D.)
PROPOSED WATER MAIN
TEE

NOTE :

MINIMUM PRACTICAL DISTANCE - GENERALLY NO MORE THAN 2 FT.

WATER MAIN LATERAL CONNECTION

N.T.S.

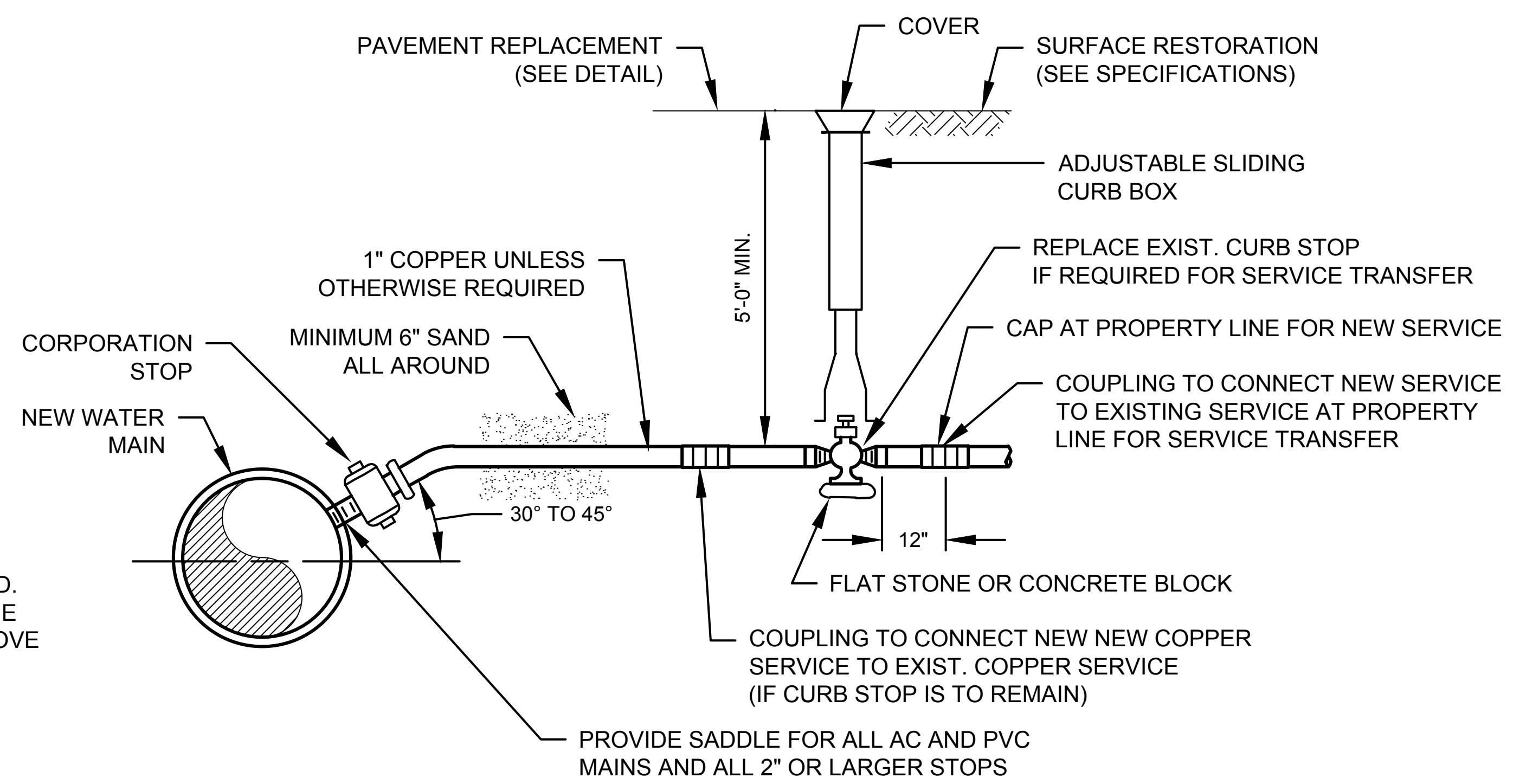


NOTE:

USE TWO 6" BENDS OR OFFSET ON LATERAL TO ACHIEVE REQUIRED HYDRANT ELEVATION IF NECESSARY.

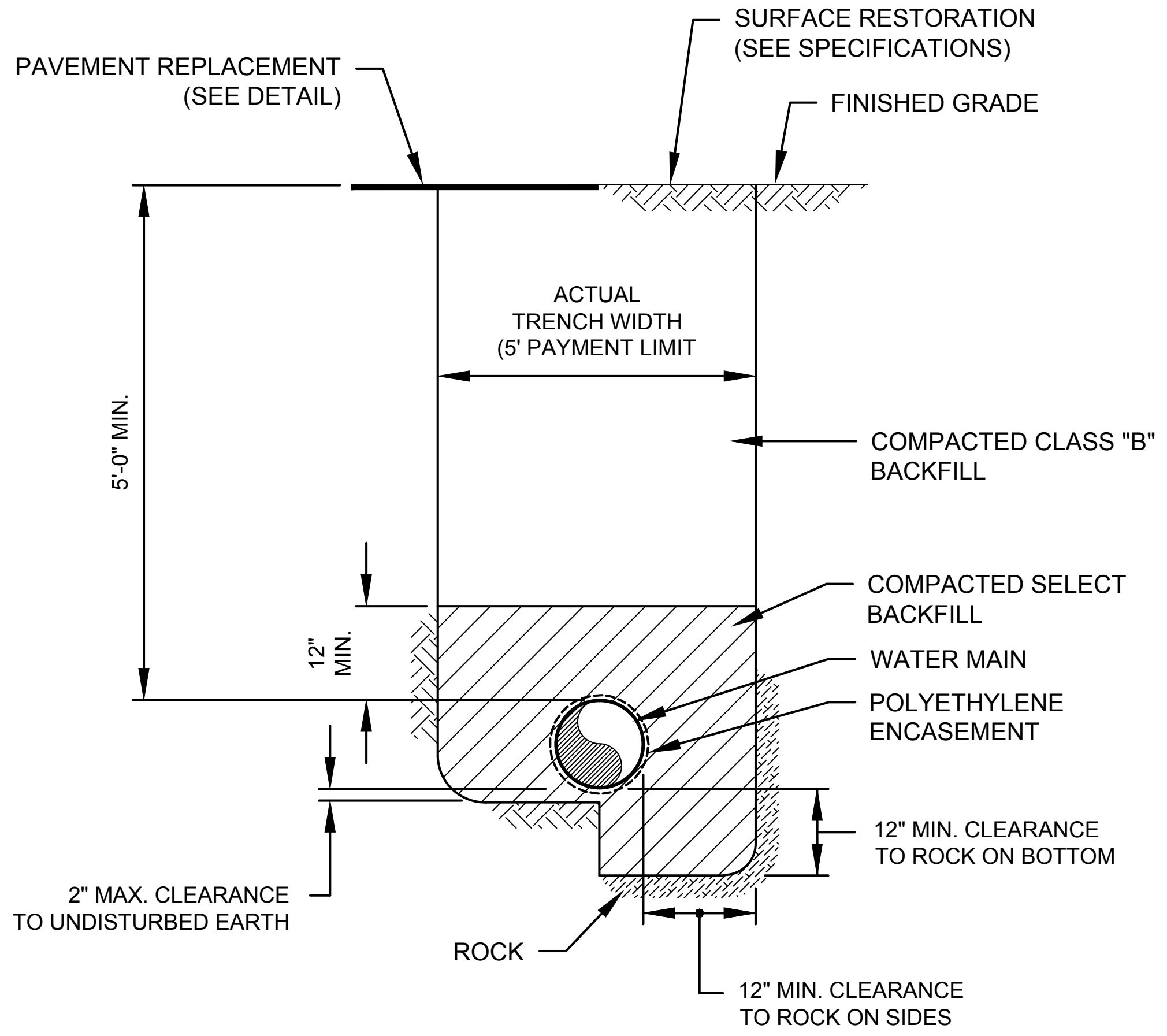
HYDRANT AND VALVE DETAIL

N.T.S.


PAVEMENT REPLACEMENT (SEE DETAIL)
COVER
SURFACE RESTORATION (SEE SPECIFICATIONS)
ADJUSTABLE SLIDING CURB BOX
5'-0" MIN.
1" COPPER UNLESS OTHERWISE REQUIRED
REPLACE EXIST. CURB STOP IF REQUIRED FOR SERVICE TRANSFER
CAP AT PROPERTY LINE FOR NEW SERVICE
CORPORATION STOP
MINIMUM 6" SAND ALL AROUND
COUPLING TO CONNECT NEW SERVICE TO EXISTING SERVICE AT PROPERTY LINE FOR SERVICE TRANSFER
NEW WATER MAIN
30° TO 45°
12"
FLAT STONE OR CONCRETE BLOCK
COUPLING TO CONNECT NEW NEW COPPER SERVICE TO EXIST. COPPER SERVICE (IF CURB STOP IS TO REMAIN)
PROVIDE SADDLE FOR ALL AC AND PVC MAINS AND ALL 2" OR LARGER STOPS

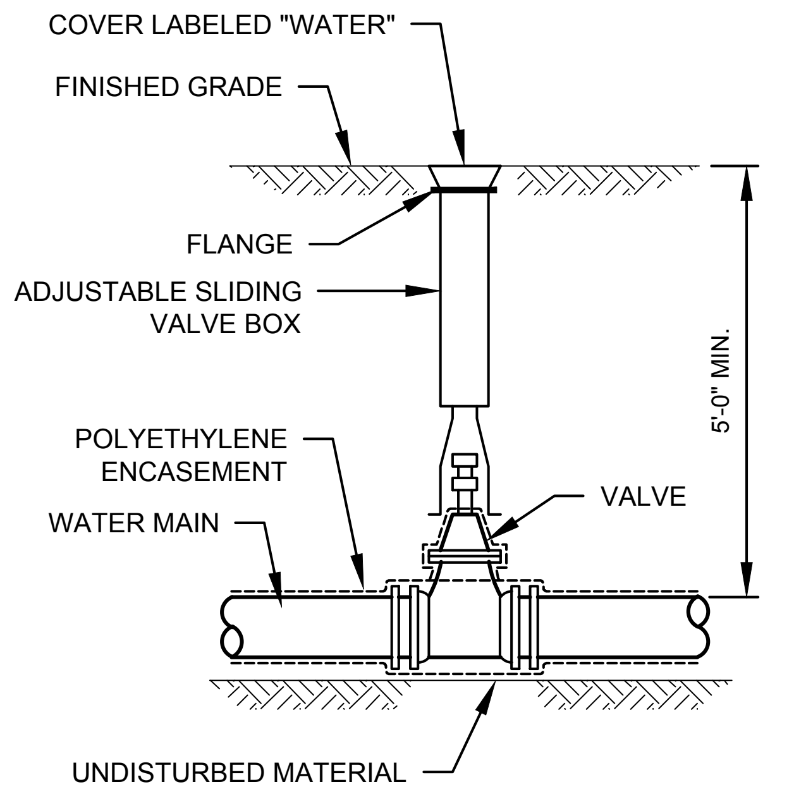
WATER SERVICE DETAIL

N.T.S.


PAVEMENT REPLACEMENT (SEE DETAIL)
SURFACE RESTORATION (SEE SPECIFICATIONS)
FINISHED GRADE
ACTUAL TRENCH WIDTH (5' PAYMENT LIMIT
5'-0" MIN.
COMPACTED CLASS "B" BACKFILL
12" MIN.
COMPACTED SELECT BACKFILL
WATER MAIN
POLYETHYLENE ENCASEMENT
12" MIN. CLEARANCE TO ROCK ON BOTTOM
2" MAX. CLEARANCE TO UNDISTURBED EARTH
ROCK
12" MIN. CLEARANCE TO ROCK ON SIDES

WATER MAIN TRENCH DETAIL

N.T.S.



VALVE AND BOX DETAIL

N.T.S.

Project:

TOWN OF NORTON,
MASSACHUSETTS

ELM STREET SEWER EXTENSION &
WATER MAIN IMPROVEMENTS PROJECT
NORTON WATER & SEWER DEPARTMENT
166 JOHN SCOTT BOULEVARD
NORTON, MA 02766

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Consultants:

Revisions:

No.	Date	Description

COA:

STEVEN K. PEDERSEN
CIVIL
No. 38295

Seal:

Issued For:

BIDDING

Scale: AS NOTED

Date: SEPTEMBER 2024
Drawn By: ALW
Reviewed By: RDH
Approved By: SKP

W&S Project No.: ENG23 - 0189
W&S File No.:

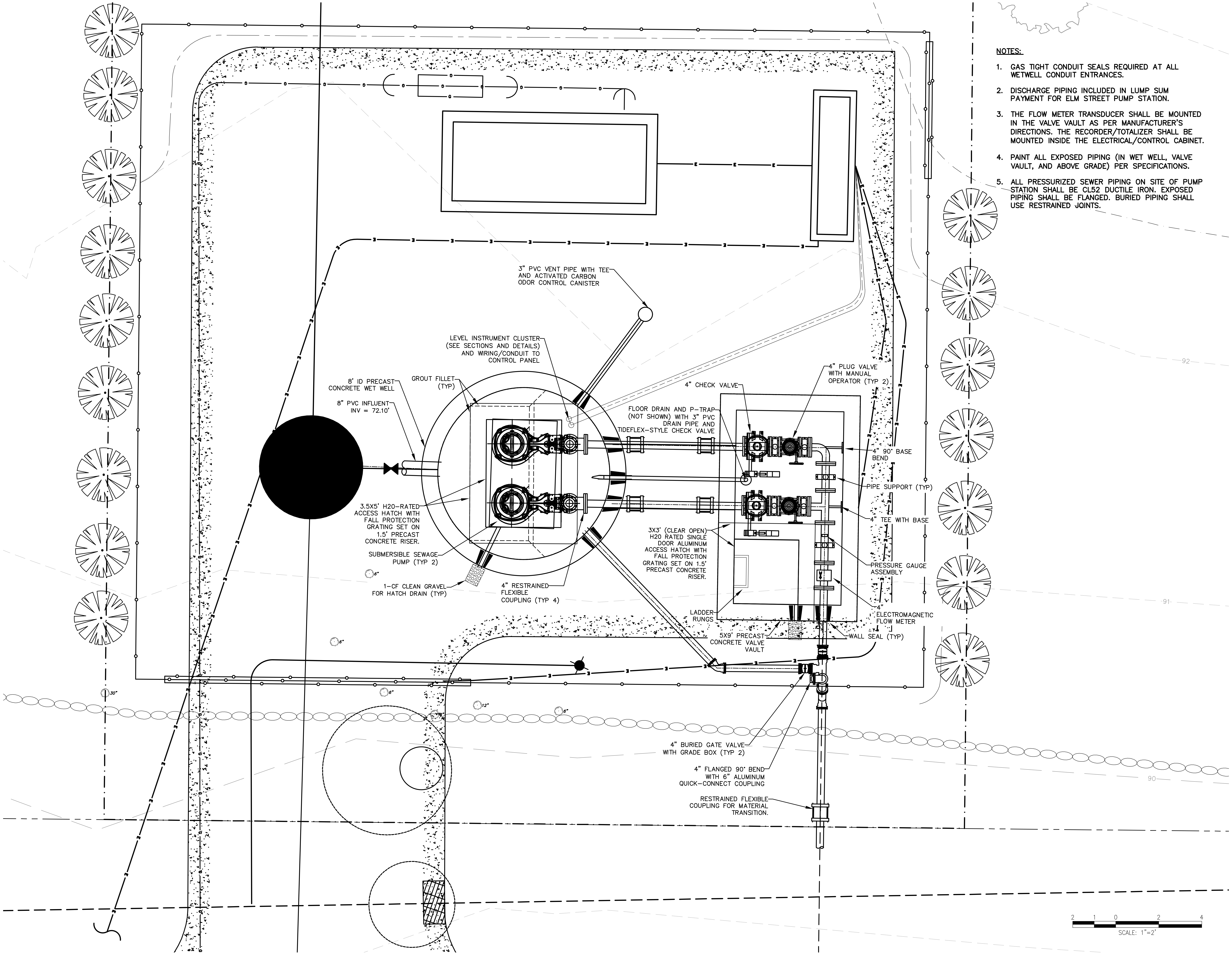
Drawing Title:

DETAILS III

Sheet Number:

C502

P:\MA\Norton MA\Elm Street Sewer\CAD\C500 Details.dwg


3" PVC VENT PIPE WITH TEE AND ACTIVATED CARBON ODOR CONTROL CANISTER
LEVEL INSTRUMENT CLUSTER (SEE SECTIONS AND DETAILS) AND WIRING/CONDUIT TO CONTROL PANEL
8' ID PRECAST CONCRETE WET WELL
GROUT FILLET (TYP)
8" PVC INFLUENT INV = 72.10'
4" CHECK VALVE
4" PLUG VALVE WITH MANUAL OPERATOR (TYP 2)
FLOOR DRAIN AND P-TRAP (NOT SHOWN) WITH 3" PVC DRAIN PIPE AND TIDEFLEX-STYLE CHECK VALVE
4" 90° BASE BEND
PIPE SUPPORT (TYP)
3.5X5' H20-RATED ACCESS HATCH WITH FALL PROTECTION GRATING SET ON 1.5' PRECAST CONCRETE RISER.
4" TEE WITH BASE
3X3' (CLEAR OPEN) H20 RATED SINGLE DOOR ALUMINUM ACCESS HATCH WITH FALL PROTECTION GRATING SET ON 1.5' PRECAST CONCRETE RISER.
SUBMERSIBLE SEWAGE PUMP (TYP 2)
PRESSURE GAUGE ASSEMBLY
1-CF CLEAN GRAVEL FOR HATCH DRAIN (TYP)
4" RESTRAINED FLEXIBLE COUPLING (TYP 4)
4" ELECTROMAGNETIC FLOW METER
LADDER RUNGS
5X9' PRECAST CONCRETE VALVE VAULT
WALL SEAL (TYP)
4" BURIED GATE VALVE WITH GRADE BOX (TYP 2)
4" FLANGED 90° BEND WITH 6" ALUMINUM QUICK-CONNECT COUPLING
RESTRAINED FLEXIBLE COUPLING FOR MATERIAL TRANSITION.
6"
6"
6"
12"
6"
30"
92
91
90
2
1
0
2
4
SCALE: 1"=2'

NOTES:

1. GAS TIGHT CONDUIT SEALS REQUIRED AT ALL WETWELL CONDUIT ENTRANCES.
2. DISCHARGE PIPING INCLUDED IN LUMP SUM PAYMENT FOR ELM STREET PUMP STATION.
3. THE FLOW METER TRANSDUCER SHALL BE MOUNTED IN THE VALVE VAULT AS PER MANUFACTURER'S DIRECTIONS. THE RECORDER/TOTALIZER SHALL BE MOUNTED INSIDE THE ELECTRICAL/CONTROL CABINET.
4. PAINT ALL EXPOSED PIPING (IN WET WELL, VALVE VAULT, AND ABOVE GRADE) PER SPECIFICATIONS.
5. ALL PRESSURIZED SEWER PIPING ON SITE OF PUMP STATION SHALL BE CL52 DUCTILE IRON. EXPOSED PIPING SHALL BE FLANGED. BURIED PIPING SHALL USE RESTRAINED JOINTS.

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Approved By: SKP
W&S Project No.: ENG23 - 0189
W&S File No.:

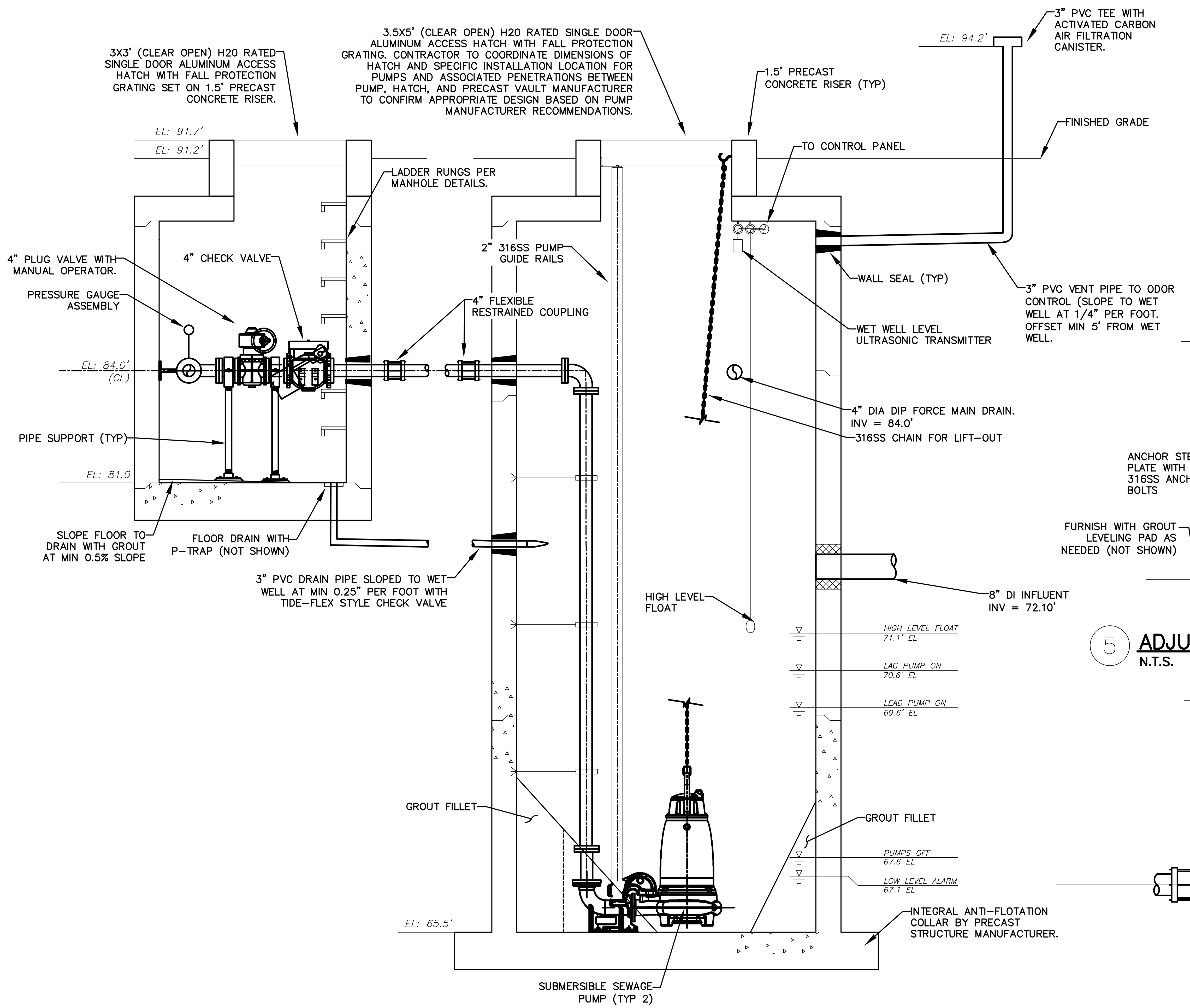
Drawing Title:

ELM STREET
PUMP STATION
MECHANICAL PLAN

Sheet Number:

M100

P:\MA\Norton MA\Elm Street Sewer\CAD\Elm Street Pump Station Mechanical Sheets.dwg


3X3' (CLEAR OPEN) H20 RATED SINGLE DOOR ALUMINUM ACCESS HATCH WITH FALL PROTECTION GRATING SET ON 1.5' PRECAST CONCRETE RISER.
3.5X5' (CLEAR OPEN) H20 RATED SINGLE DOOR ALUMINUM ACCESS HATCH WITH FALL PROTECTION GRATING. CONTRACTOR TO COORDINATE DIMENSIONS OF HATCH AND SPECIFIC INSTALLATION LOCATION FOR PUMPS AND ASSOCIATED PENETRATIONS BETWEEN PUMP, HATCH, AND PRECAST VAULT MANUFACTURER TO CONFIRM APPROPRIATE DESIGN BASED ON PUMP MANUFACTURER RECOMMENDATIONS.
1.5' PRECAST CONCRETE RISER (TYP)
EL: 94.2'
3" PVC TEE WITH ACTIVATED CARBON AIR FILTRATION CANISTER.
FINISHED GRADE
EL: 91.7'
EL: 91.2'
TO CONTROL PANEL
LADDER RUNGS PER MANHOLE DETAILS.
4" PLUG VALVE WITH MANUAL OPERATOR.
4" CHECK VALVE
PRESSURE GAUGE ASSEMBLY
2" 316SS PUMP GUIDE RAILS
4" FLEXIBLE RESTRAINED COUPLING
WALL SEAL (TYP)
3" PVC VENT PIPE TO ODOR CONTROL (SLOPE TO WET WELL AT 1/4" PER FOOT. OFFSET MIN 5' FROM WET WELL.
WET WELL LEVEL ULTRASONIC TRANSMITTER
EL: 84.0' (CL)
4" DIA DIP FORCE MAIN DRAIN. INV = 84.0'
316SS CHAIN FOR LIFT-OUT
PIPE SUPPORT (TYP)
EL: 81.0
SLOPE FLOOR TO DRAIN WITH GROUT AT MIN 0.5% SLOPE
FLOOR DRAIN WITH P-TRAP (NOT SHOWN)
3" PVC DRAIN PIPE SLOPED TO WET WELL AT MIN 0.25" PER FOOT WITH TIDE-FLEX STYLE CHECK VALVE
8" DI INFLUENT INV = 72.10'
HIGH LEVEL FLOAT
HIGH LEVEL FLOAT 71.1' EL
LAG PUMP ON 70.6' EL
LEAD PUMP ON 69.6' EL
GROUT FILLET
GROUT FILLET
PUMPS OFF 67.6 EL
LOW LEVEL ALARM 67.1 EL
EL: 65.5'
INTEGRAL ANTI-FLOTATION COLLAR BY PRECAST STRUCTURE MANUFACTURER.
SUBMERSIBLE SEWAGE PUMP (TYP 2)

① ELM STREET PUMP STATION – SECTION

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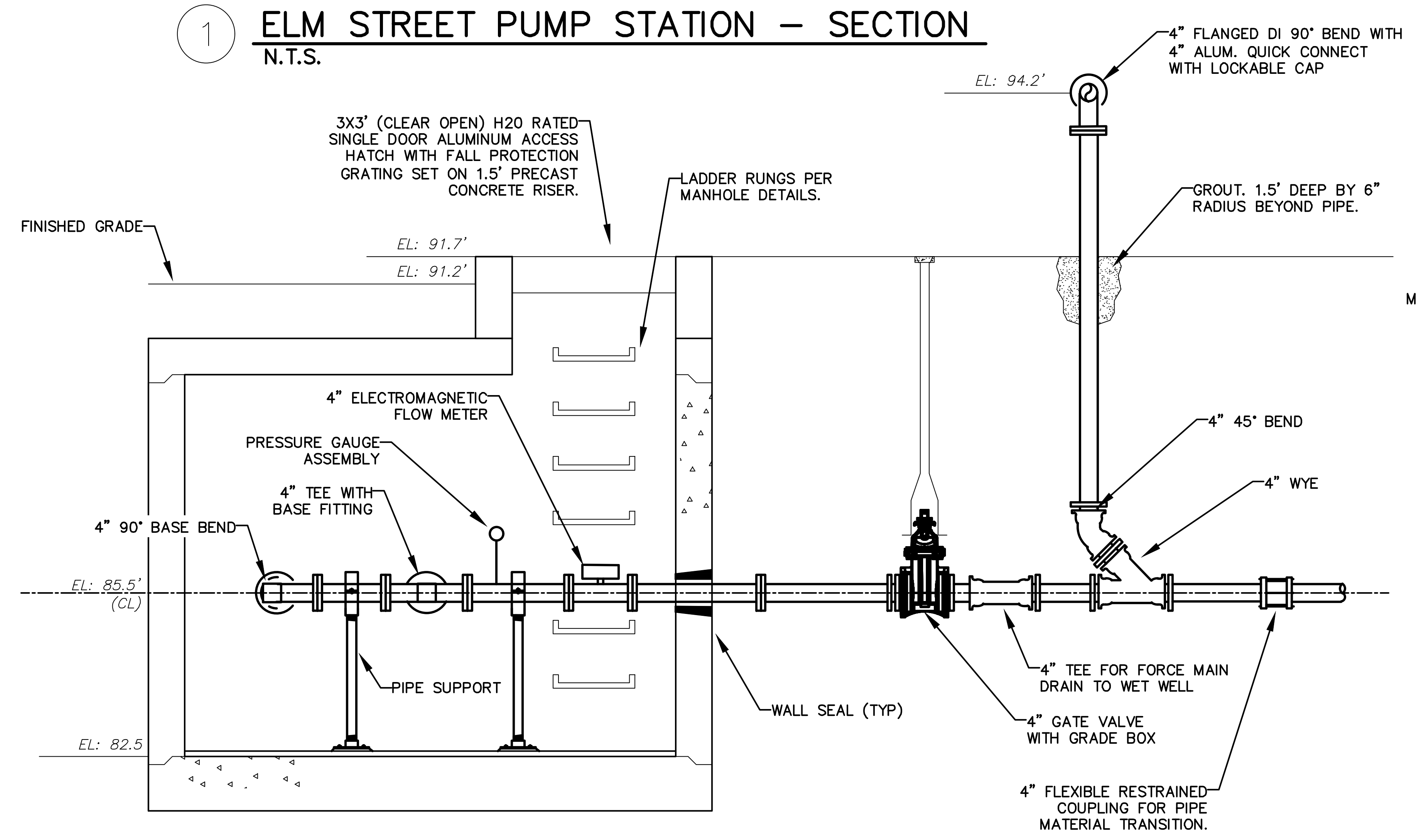
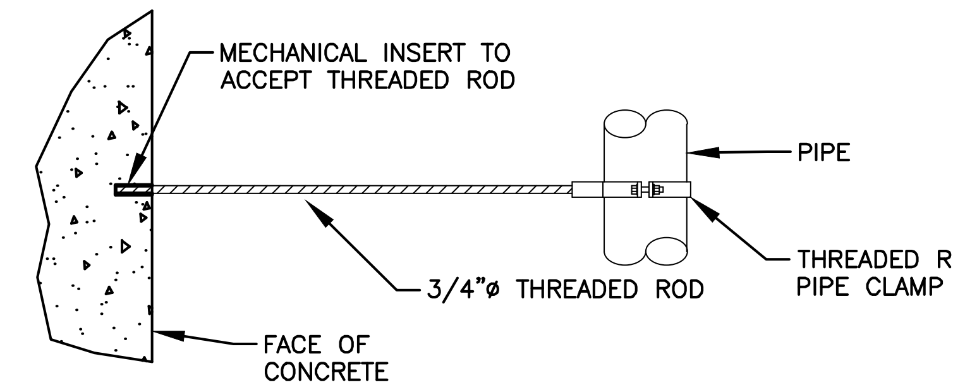

4" FLANGED DI 90° BEND WITH 4" ALUM. QUICK CONNECT WITH LOCKABLE CAP
EL: 94.2'
3X3' (CLEAR OPEN) H20 RATED SINGLE DOOR ALUMINUM ACCESS HATCH WITH FALL PROTECTION GRATING SET ON 1.5' PRECAST CONCRETE RISER.
LADDER RUNGS PER MANHOLE DETAILS.
GROUT. 1.5' DEEP BY 6" RADIUS BEYOND PIPE.
FINISHED GRADE
EL: 91.7'
EL: 91.2'
4" ELECTROMAGNETIC FLOW METER
PRESSURE GAUGE ASSEMBLY
4" TEE WITH BASE FITTING
4" 90° BASE BEND
4" 45° BEND
4" WYE
EL: 85.5' (CL)
PIPE SUPPORT
WALL SEAL (TYP)
4" TEE FOR FORCE MAIN DRAIN TO WET WELL
4" GATE VALVE WITH GRADE BOX
EL: 82.5
4" FLEXIBLE RESTRAINED COUPLING FOR PIPE MATERIAL TRANSITION.

② ELM STREET PUMP STATION – SECTION

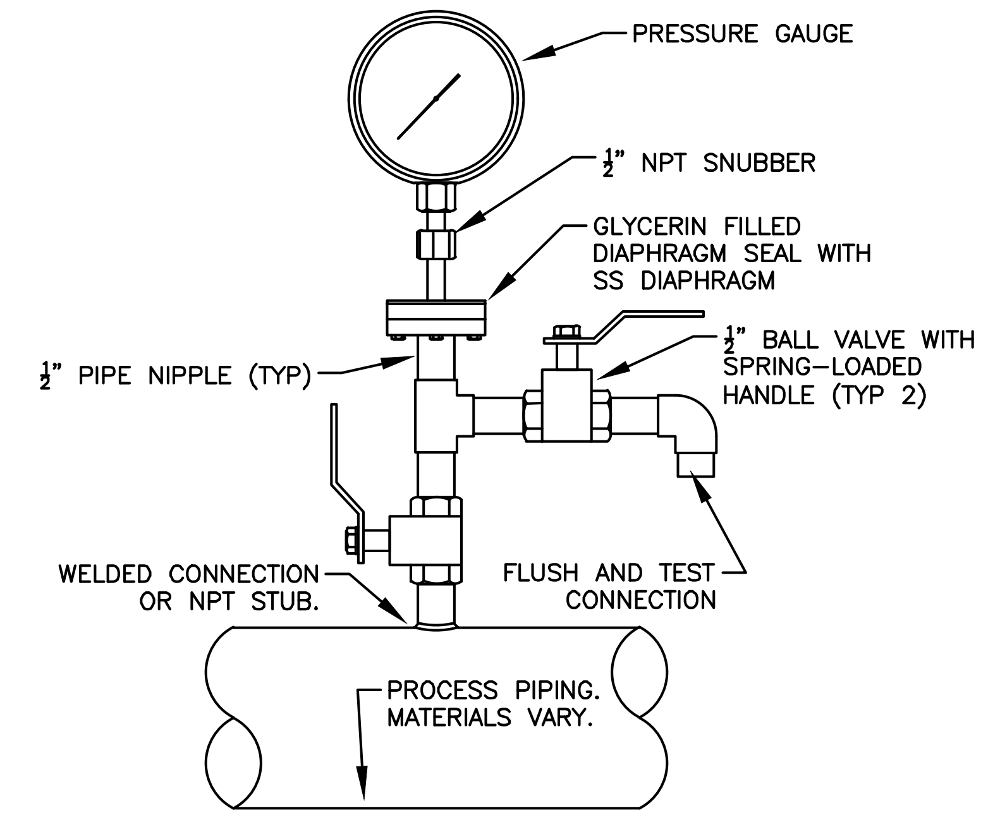
N.T.S.



NOTES:
1. PIPE SUPPORT MATERIALS SHALL BE 316SS.
2. ANCHOR BOLTS SHALL BE CAPABLE OF RESISTING PULLOUT LOAD OF 2000LB AND SHEAR LOAD OF 2500LB.
3. ANCHOR BOLTS SHALL HAVE MIN. EMBEDMENT OF 3-1/2".
4. WALL BRACKET SPACING BY CONTRACTOR (MAX 10' O/C).
5. DESIGN SHALL BE BY A LICENSED PROFESSIONAL ENGINEER.

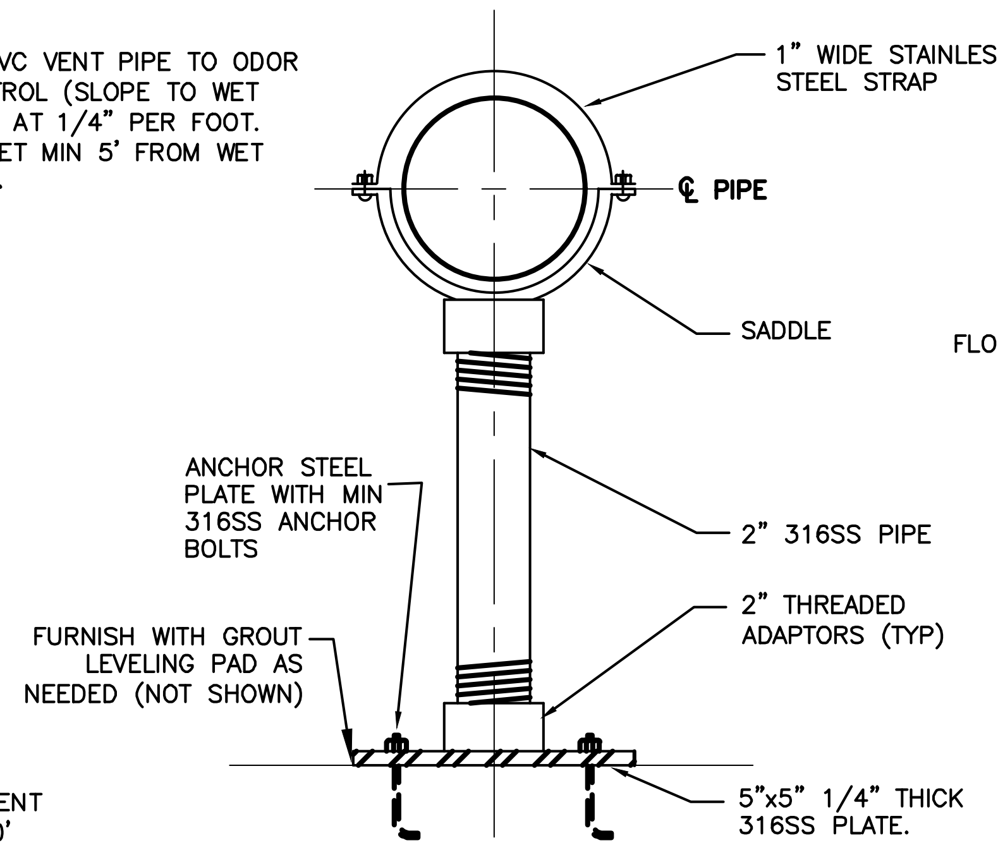
③ VERTICAL PIPE SUPPORT DETAIL

N.T.S


PRESSURE GAUGE
½" NPT SNUBBER
GLYCERIN FILLED DIAPHRAGM SEAL WITH SS DIAPHRAGM
½" PIPE NIPPLE (TYP)
½" BALL VALVE WITH SPRING-LOADED HANDLE (TYP 2)
WELDED CONNECTION OR NPT STUB.
FLUSH AND TEST CONNECTION
PROCESS PIPING. MATERIALS VARY.

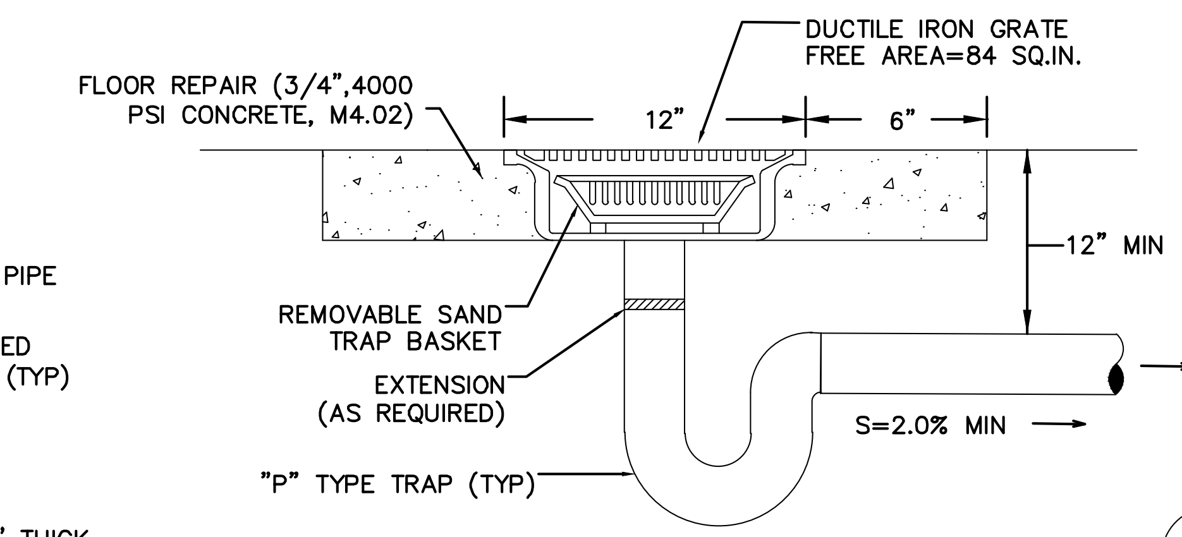
④ PRESSURE GAUGE DETAIL

N.T.S


1" WIDE STAINLESS STEEL STRAP
℄ PIPE
SADDLE
ANCHOR STEEL PLATE WITH MIN 316SS ANCHOR BOLTS
2" 316SS PIPE
FURNISH WITH GROUT LEVELING PAD AS NEEDED (NOT SHOWN)
2" THREADED ADAPTORS (TYP)
5"x5" 1/4" THICK 316SS PLATE.

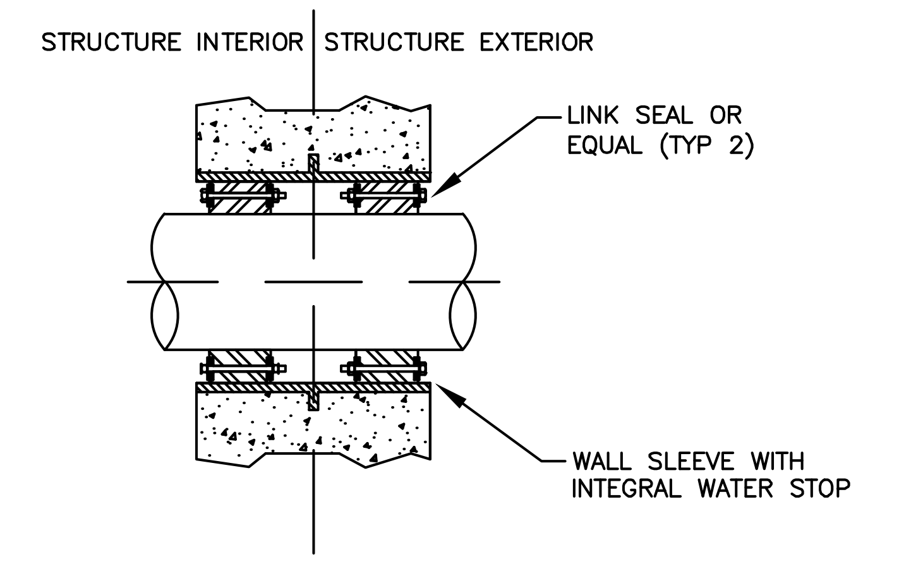
⑤ ADJUSTABLE PIPE SUPPORT

N.T.S.


DUCTILE IRON GRATE FREE AREA=84 SQ.IN.
FLOOR REPAIR (3/4",4000 PSI CONCRETE, M4.02)
12"
6"
12" MIN
REMOVABLE SAND TRAP BASKET
EXTENSION (AS REQUIRED)
S=2.0% MIN
"P" TYPE TRAP (TYP)

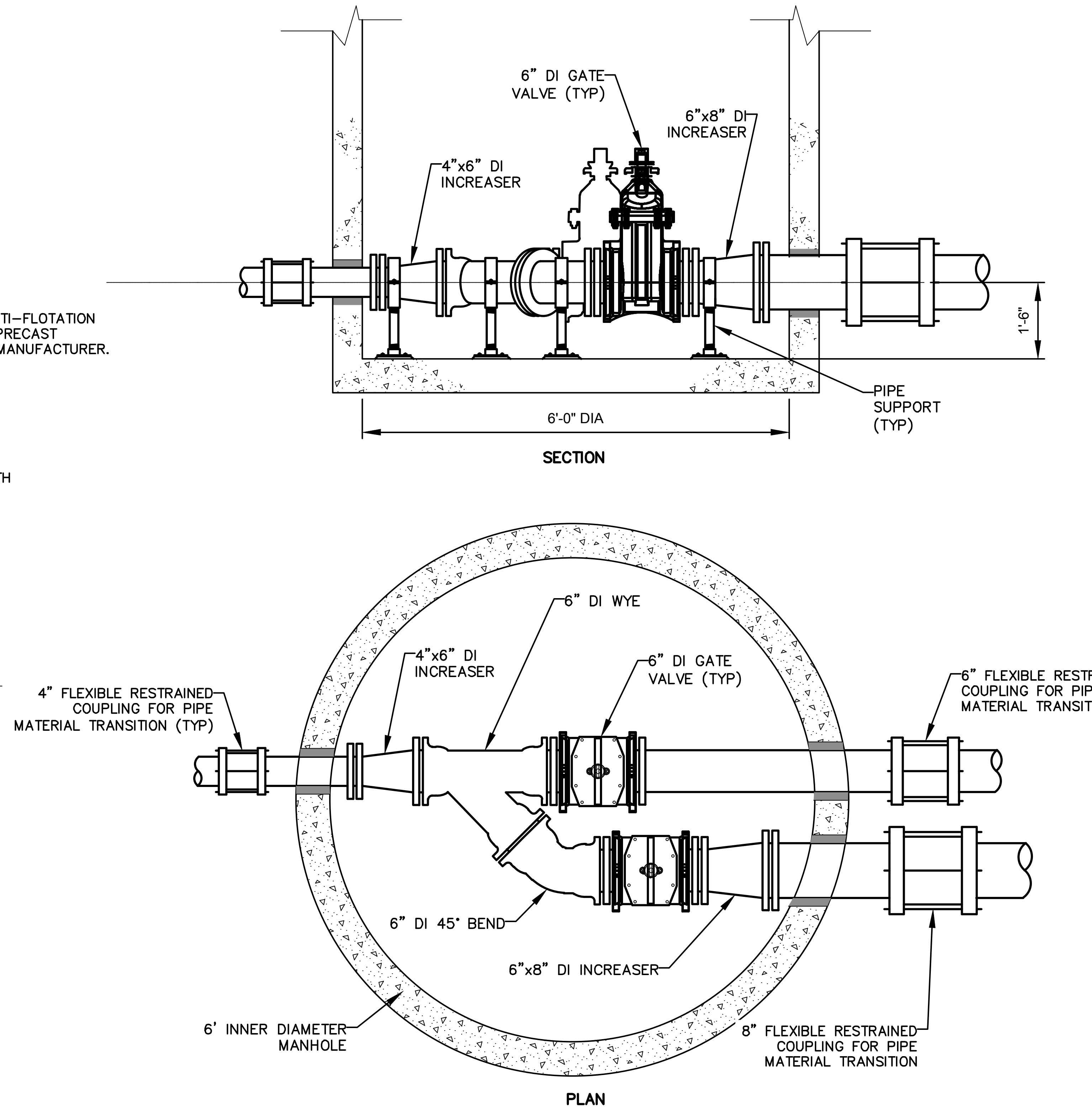
⑥ FLOOR DRAIN/SANDTRAP DETAIL

N.T.S.


STRUCTURE INTERIOR
STRUCTURE EXTERIOR
LINK SEAL OR EQUAL (TYP 2)
WALL SLEEVE WITH INTEGRAL WATER STOP

⑦ WATER-TIGHT PIPE PENETRATION

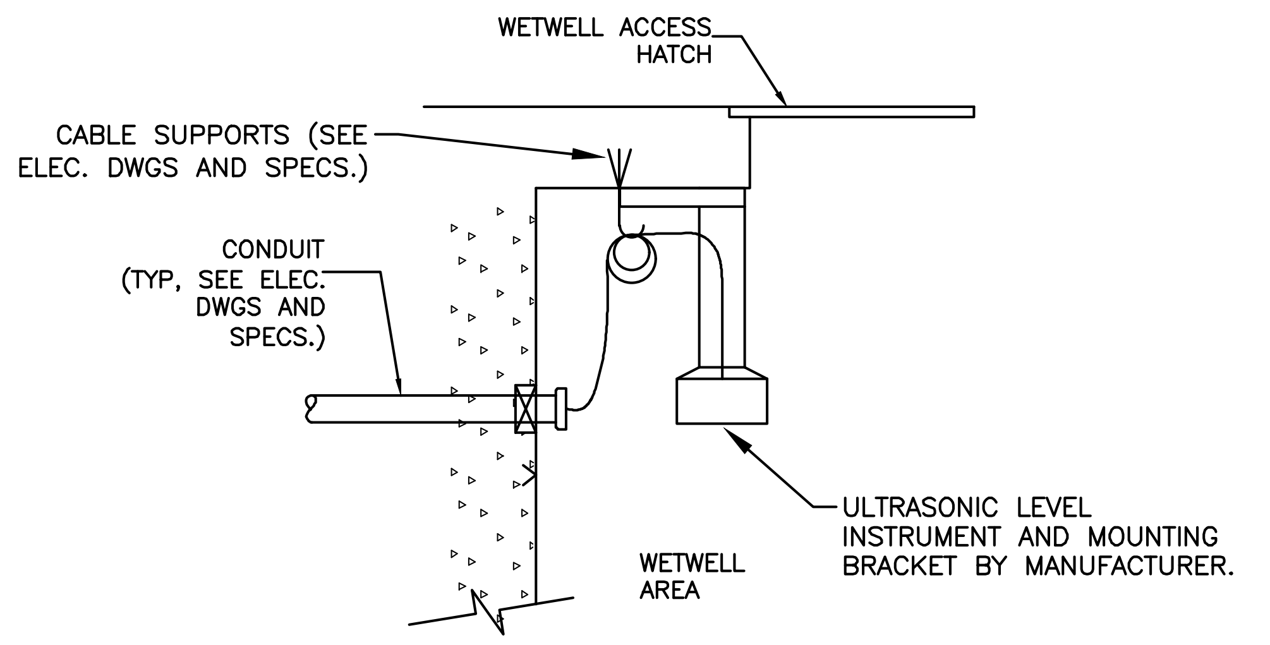
N.T.S.


6" DI GATE VALVE (TYP)
6"x8" DI INCREASER
4"x6" DI INCREASER
1'-6"
6'-0" DIA
PIPE SUPPORT (TYP)
SECTION
6" DI WYE
4"x6" DI INCREASER
6" DI GATE VALVE (TYP)
4" FLEXIBLE RESTRAINED COUPLING FOR PIPE MATERIAL TRANSITION (TYP)
6" FLEXIBLE RESTRAINED COUPLING FOR PIPE MATERIAL TRANSITION
6" DI 45° BEND
6"x8" DI INCREASER
6' INNER DIAMETER MANHOLE
8" FLEXIBLE RESTRAINED COUPLING FOR PIPE MATERIAL TRANSITION
PLAN

⑨ FORCE MAIN VALVE MANHOLE

N.T.S.

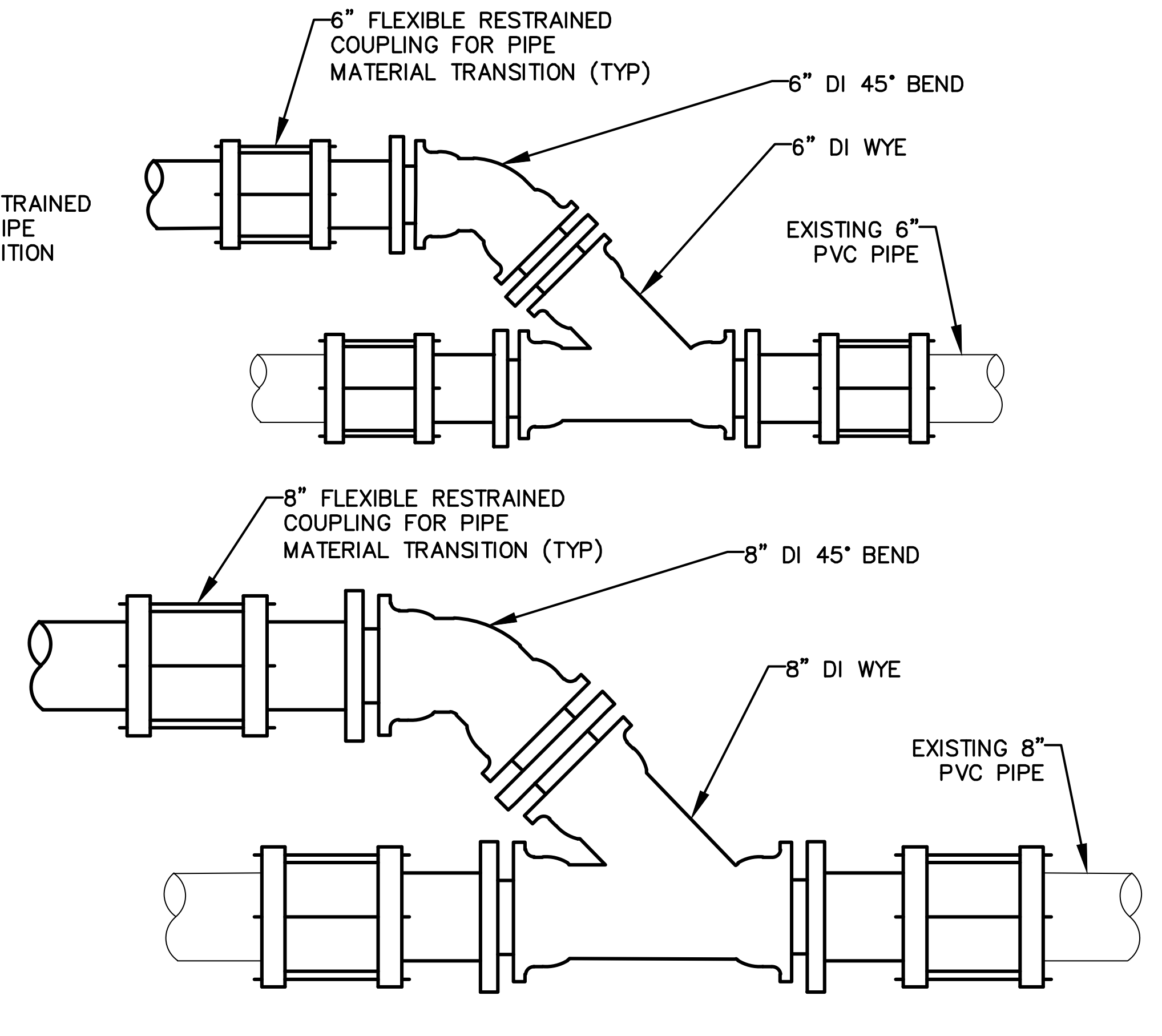
NOTES:
1. CONSTRUCTION OF MANHOLE/STRUCTURE SHALL BE SIMILAR TO TYPICAL PRECAST CONCRETE MANHOLE DETAIL EXCEPT AS SHOWN, INCLUDING MATERIALS, COMPACTED CRUSHED STONE BASE, PIPING CONNECTIONS, ETC.
2. ALL VALVES AND PIPING BETWEEN FLEXIBLE COUPLINGS SHALL BE DI AND SHALL BE INSTALLED AS SHOWN ON TYPICAL TRENCH DETAIL.
3. DIRECT BURIED FITTINGS SHALL BE MJ, FITTINGS INSIDE STRUCTURE SHALL BE FLANGED.
4. PAY LIMITS SHALL BE MEASURED FROM FLEXIBLE COUPLING TO FLEXIBLE COUPLING.


WETWELL ACCESS HATCH
CABLE SUPPORTS (SEE ELEC. DWGS AND SPECS.)
CONDUIT (TYP, SEE ELEC. DWGS AND SPECS.)
WETWELL AREA
ULTRASONIC LEVEL INSTRUMENT AND MOUNTING BRACKET BY MANUFACTURER.

⑧ ULTRASONIC LEVEL INSTRUMENT DETAIL

N.T.S.

NOTES:
1. PROVIDE SUFFICIENT CABLE LENGTH FOR MAINTENANCE, CLEANING OR REPLACEMENT PURPOSES.
2. MOUNT INSTRUMENT WITHIN REACH OF THE CLOSES ACCESS HATCH SUCH THAT DEVICE MAY BE REMOVED FROM WET WELL WITHOUT ENTERING STRUCTURE.


6" FLEXIBLE RESTRAINED COUPLING FOR PIPE MATERIAL TRANSITION (TYP)
6" DI 45° BEND
6" DI WYE
EXISTING 6" PVC PIPE
8" FLEXIBLE RESTRAINED COUPLING FOR PIPE MATERIAL TRANSITION (TYP)
8" DI 45° BEND
8" DI WYE
EXISTING 8" PVC PIPE

⑩ CONNECTION TO EXISTING 6" AND 8" FORCE MAIN

N.T.S.

P:\MA\Norton MA\Elm Street Sewer\CAD\Elm Street Pump Station Mechanical Sheets.dwg

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W&S Project No.: ENG23 - 0189
W&S File No.:

Drawing Title:
ELM STREET
PUMP STATION &
FORCE MAIN
MECHANICAL
SECTIONS & DETAILS

Sheet Number:
M101

ELECTRICAL ABBREVIATIONS LIST

1P	1 POLE (2P, 3P, 4P, ETC.)	CTR	CENTER	HT	HEIGHT	NEMA	NATIONAL ELECTRICAL	SWBD	SWITCHBOARD
A	AMPERE	CU	COPPER	HTG	HEATING		MANUFACTURER'S ASSOCIATION	SYM	SYMMETRICAL
AC	ABOVE COUNTER OR AIR	DCP	DOMESTIC WATER CIRCULATING PUMP	HTR	HEATER	NFDS	NON-FUSED SAFETY DISCONNECT	SYS	SYSTEM
CONDITIONER		DEPT	DEPARTMENT	HV	HIGH VOLTAGE		SWITCH	TEL	TELEPHONE
ACLG	ABOVE CEILING	DET	DETAIL	HVAC	HEATING, VENTILATING AND AIR	NIC	NOT IN CONTRACT	TEL/DATA	TELEPHONE/DATA
ADO	AUTOMATIC DOOR OPENER	DIA	DIAMETER	CONDITIONING		NL	NIGHT LIGHT	TERM	TERMINAL
AF	AMP FRAME	DISC	DISCONNECT	HWP	HYDRONIC WATER PUMP	N.O.	NORMALLY OPEN	TL	TWIST LOCK
AFF	ABOVE FINISHED FLOOR	DIST	DISTRIBUTION	IC	INTERRUPTING CAPACITY	NPF	NORMAL POWER FACTOR	TR	TAMPER RESISTANT
AFG	ABOVE FINISHED GRADE	DN	DOWN	IG	ISOLATED GROUND	NTS	NOT TO SCALE	T-STAT	THERMOSTAT
AFI	ARC FAULT CIRCUIT	DPR	DAMPER	IMC	INTERMEDIATE METAL CONDUIT	OH	OVERHEAD	TTC	TELEPHONE TERMINAL CABINET
	INTERRUPTER	DS	SAFETY DISCONNECT SWITCH	INCAND	INCANDESCENT	OL	OVERLOADS	TV	TELEVISION
AHU	AIR HANDLING UNIT	DT	DOUBLE THROW	IR	INFRARED	PA	PUBLIC ADDRESS	TVTC	TELEVISION TERMINAL CABINET
AL	ALUMINUM	DWG	DRAWING	I/W	INTERLOCK WITH	PB	PULL BOX OR PUSHBUTTON	TYP	TYPICAL
ALT	ALTERNATE	EC	ELECTRICAL CONTRACTOR	J-BOX	JUNCTION BOX	PE	PNEUMATIC ELECTRIC	UC	UNDER COUNTER
AMP	AMPERE	ELEC	ELECTRIC, ELECTRICAL	KV	KILOVOLT	PED	PEDESTAL	UE	UNDERGROUND ELECTRICAL
AMPL	AMPLIFIER	ELEV	ELEVATOR	KVA	KILOVOLT-AMPERE	PF	POWER FACTOR	UG	UNDERGROUND
ANNUN	ANNUNCIATOR	EM	EMERGENCY	KVAR	KILOVOLT-AMPERE REACTIVE	PH	PHASE	UH	UNIT HEATER
APPROX	APPROXIMATELY	EMS	ENERGY MANAGEMENT SYSTEM	KW	KILOWATT	PIV	POST INDICATING VALVE	UT	UNDERGROUND TELEPHONE
AQ-STAT	AQUASTAT	EMT	ELECTRICAL METALLIC TUBING	KWH	KILOWATT HOUR	PNL	PANEL	UTIL	UTILITY
ARCH	ARCHITECT, ARCHITECTURAL	EP	ELECTRIC PNEUMATIC	LOC	LOCATE OR LOCATION	PP	POWER POLE	UV	UNIT VENTILATOR OR
AS	AMP SWITCH	EQUIP	EQUIPMENT	LT	LIGHT	PR	PAIR		ULTRAVIOLET
AT	AMP TRIP	EWC	ELECTRIC WATER COOLER	LTG	LIGHTING	PRI	PRIMARY	V	VOLT
ATS	AUTOMATIC TRANSFER SWITCH	EXIST	EXISTING	LTNG	LIGHTNING	PROJ	PROJECTION	VA	VOLT-AMPERES
AUTO	AUTOMATIC	EXH	EXHAUST	LV	LOW VOLTAGE	PRV	POWER ROOF VENTILATOR	VDT	VIDEO DISPLAY TERMINAL
AUX	AUXILIARY	EXP	EXPLOSION PROOF	MAX	MAXIMUM	PT	POTENTIAL TRANSFORMER	VERT	VERTICAL
AV	AUDIO VISUAL	FA	FIRE ALARM	MAG.S	MAGNETIC STARTER	PVC	POLYVINYL CHLORIDE (CONDUIT)	VFD	VARIABLE FREQUENCY DRIVE
AWG	AMERICAN WIRE GAUGE	FABP	FIRE ALARM BOOSTER POWER	M/C	MOMENTARY CONTACT	PWR	POWER	VOL	VOLUME
BATT	BATTERY		SUPPLY PANEL	MC	MECHANICAL CONTRACTOR	QUAN	QUANTITY	W	WATT
BD	BOARD	FACP	FIRE ALARM CONTROL PANEL	MCB	MAIN CIRCUIT BREAKER	RCPT	RECEPTACLE	W/	WITH
BLDG	BUILDING	FCU	FAN COIL UNIT	MCC	MOTOR CONTROL CENTER	REQD	REQUIRED	WG	WIRE GUARD
BMS	BUILDING MANAGEMENT SYSTEM	FIXT	FIXTURE	MDC	MAIN DISTRIBUTION CENTER	RM	ROOM	WH	WATER HEATER
C	CONDUIT	FLR	FLOOR	MDP	MAIN DISTRIBUTION PANEL	RSC	RIGID STEEL CONDUIT	W/O	WITHOUT
CAB	CABINET	FLUOR	FLUORESCENT	MFR	MANUFACTURER	RTU	ROOF TOP UNIT	WP	WEATHERPROOF
CAT	CATALOG	FU	FUSE	MFS	MAIN FUSED DISCONNECT SWITCH	SC	SURFACE CONDUIT	XFMR	TRANSFORMER
CATV	CABLE TELEVISION	FUDS	FUSED SAFETY DISCONNECT SWITCH	MH	MANHOLE	SEC	SECONDARY	XFR	TRANSFER
CB	CIRCUIT BREAKER	GA	GAUGE	MIC	MICROPHONE	SHT	SHEET		
CCTV	CLOSED CIRCUIT TELEVISION	GAL	GALLON	MIN	MINIMUM	SIM	SIMILAR		
CKT	CIRCUIT	GALV	GALVANIZED	MISC	MISCELLANEOUS	S/N	SOLID NEUTRAL		
CLG	CEILING	GC	GENERAL CONTRACTOR	MLO	MAIN LUGS ONLY	SPEC	SPECIFICATION		ANGLE
COMB	COMBINATION	GEN	GENERATOR	MMS	MANUAL MOTOR STARTER	SPKR	SPEAKER	@	AT
CMPR	COMPRESSOR	GFI	GROUND FAULT CIRCUIT INTERRUPTER	MOA	MULTIOUTLET ASSEMBLY	SP	SPARE		DELTA
CONN	CONNECTION	GFP	GROUND FAULT PROTECTOR	MSP	MOTOR STARTER PANELBOARD	SR	SURFACE RACEWAY	'	FEET
CONST	CONSTRUCTION	GND	GROUND	MSBD	MAIN SWITCHBOARD	SS	STAINLESS STEEL	"	INCHES
CONT	CONTINUATION OR CONTINUOUS	GRS	GALVANIZED RIGID STEEL (CONDUIT)	MT	MOUNT	SSW	SELECTOR SWITCH	#	NUMBER
CONTR	CONTRACTOR	GYP BD	GYPSUM BOARD	MT.C	EMPTY CONDUIT	S/S	STOP/START PUSHBUTTONS	Ø	PHASE
CONV	CONVECTOR	HOA	HANDS-OFF-AUTOMATIC SWITCH	MTS	MANUAL TRANSFER SWITCH	STA	STATION	C	CENTER LINE
CP	CIRCULATING PUMP	HORIZ	HORIZONTAL	MTR	MOTOR, MOTORIZED	STD	STANDARD	P	PLATE
CRT	CATHODE-RAY TUBE	HP	HORSEPOWER	N.C.	NORMALLY CLOSED	SURF	SURFACE MOUNTED		
CT	CURRENT TRANSFORMER	HPF	HIGH POWER FACTOR	NEC	NATIONAL ELECTRICAL CODE	SW	SWITCH		

POWER LEGEND

▨	DISTRIBUTION PANEL
▬	PANELBOARD-SURFACE MOUNTED P = PANEL 4 = 480V 2 = 208V G - GENERAL L = LIGHTING M = MECHANICAL 1 = PANEL NUMBER
— GB —	GROUND BUS WALL MOUNTED CHATSWORTH MODEL NO. 10622-020 EXTEND A 1/2"C, 1-#6 INSULATED GROUND TO THE BUILDING GROUND SYSTEM
☐	SAFETY SWITCH - RATING AND TYPE AS NOTED ON THE DRAWING.
100A-3P	ENCLOSED CIRCUIT BREAKER - SIZE AS INDICATED (100A - 3 POLE)
1	MOTOR, NUMERAL DENOTES HORSE POWER
J	WALL MOUNTED JUNCTION BOX WITH BLANK COVERPLATE, SIZE AS REQUIRED BY N.E.C
VFD	VARIABLE SPEED DRIVER
N E L	AUTOMATIC TRANSFER SWITCH
●	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER CONVENIENCE OUTLET -20A, 125V, U-SLOT GROUNDED TYPE MOUNTED 18" ABOVE FINISHED FLOOR TO CENTER LINE. ALL OTHER MOUNTING HEIGHTS SHALL BE AS NOTED ADJACENT TO THE SYMBOL
WE 1,c	WALL MOUNTED EMERGENCY LED FIXTURE WITH EMERGENCY BATTER BACKUP BALLAST. PROVIDE THIRD WIRE FOR EMERGENCY MODE BYPASS IF SWITCHED (TYPICAL). "WE" DENOTES FIXTURE TYPE; NUMERAL DENOTES CIRCUIT NUMBER. "c" SUBSCRIPT DENOTES SWITCH CONTROL WHERE SHOWN
S_a	SINGLE POLE SWITCH, "a" SUBSCRIPT DENOTES CIRCUITS CONTROLLED.

GENERAL ELECTRICAL NOTES

1. DRAWINGS ARE DIAGRAMMATIC ONLY. THE EXACT LOCATION, MOUNTING HEIGHTS, SIZE OF EQUIPMENT AND ROUTING OF RACEWAYS SHALL BE COORDINATED AND DETERMINED IN THE FIELD.
2. ALL STRAIGHT FEEDER, BRANCH CIRCUIT AND AUXILIARY SYSTEM CONDUIT RUNS SHALL BE PROVIDED WITH SUFFICIENT PULL BOXES TO LIMIT THE MAXIMUM LENGTH OF ANY SINGLE CABLE PULL TO 150 FEET. EXACT SIZES OF PULL BOXES AND LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ELECTRICAL CONTRACTOR.
3. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR AS APPLICABLE AS TO THE EXACT LOCATION OF THEIR RESPECTIVE EQUIPMENT; THE POWER WIRING, CONTROL WIRING AND ALL ELECTRICAL CONNECTIONS AND CONDUIT TURN-UPS SHALL BE COORDINATED WITH THE RESPECTIVE CONTRACTORS BEFORE THE START OF CONSTRUCTION IN THE FIELD.
4. SLEEVES ARE TO BE UTILIZED FOR PASSAGE OF CONDUITS THROUGH CABINET CONCRETE BASE CONDUITS AND BOXES ARE TO BE SUPPORTED BY THE USE OF PRESET FASTENERS INSTALLED IN FLOORS, WALLS OR COLUMNS. CONDUITS AND BOXES ARE TO BE INSTALLED CONCEALED IN MASONRY WALLS AND ABOVE HUNG CEILINGS. ALL SLEEVES ARE TO BE SEALED WITH APPROVED FIRE STOPPING SEALANT.
5. WORK SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE WITH MASSACHUSETTS AMENDMENTS, MASSACHUSETTS BUILDING CODE, NFPA AND REQUIREMENTS OF LOCAL AUTHORITIES HAVING JURISDICTION.
6. THE WORD "CONTRACTOR" AS USED IN THE "ELECTRICAL WORK" SHALL MEAN THE ELECTRICAL CONTRACTOR.
7. CONTRACTOR SHALL PAY FOR ALL PERMITS, INSURANCE AND TESTS, AND SHALL PROVIDE LABOR AND MATERIAL TO COMPLETE THE ELECTRICAL WORK SHOWN.
8. CONTRACTOR SHALL PAY ELECTRIC UTILITY COMPANY BACKCHARGES
9. CONTRACTOR SHALL PROVIDE ALL REQUIRED COORDINATION WITH ELECTRIC UTILITIES
10. ELECTRIC UTILITY WORK ORDER NUMBER FOR THIS PROJECT IS #WR31039620.
11. EXCEPT AS OTHERWISE NOTED, THE ELECTRICAL WORK SHALL INCLUDE PANELBOARDS, CIRCUIT BREAKERS, FEEDERS, WIRING, RACEWAYS, LIGHTING FIXTURES, DEVICES, SAFETY SWITCHES, TRANSFORMERS AND CONNECTION NECESSARY TO OPERATE MOTORS AND OTHER EQUIPMENT.
12. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY LIGHTING AND POWER AND THE GENERAL CONTRACTOR SHALL PAY ALL ENERGY CHARGES FOR TEMPORARY POWER AND LIGHTING.
13. DURING CONSTRUCTION, THE ELECTRICAL CONTRACTOR SHALL KEEP HIS PORTION OF THE WORK NEAT, CLEAN AND ORDERLY.
14. ALL SYSTEMS SHALL BE TESTED FOR SHORT CIRCUIT AND GROUNDS PRIOR TO ENERGIZING AND ANY DEFECTS SHALL BE CORRECTED.
15. ALL CUTTING AND PATCHING REQUIRED FOR ELECTRICAL WORK SHALL BE INCLUDED AS PART OF THIS SECTION.
16. COMPLETE SHOP DRAWINGS SHALL BE SUBMITTED FOR ELECTRICAL EQUIPMENT.

    WHERE SPECIFIED ELECTRICAL EQUIPMENT IS SUBSTITUTED, THE ELECTRICAL CONTRACTOR SHALL SUBMIT COMPLETE SPECIFICATIONS ON THE SUBSTITUTE AS WELL AS THE ITEM ORIGINALLY SPECIFIED.
17. MATERIALS SHALL BE SPECIFICATION GRADE AND UL LISTED.
18. WHERE MATERIAL IS CALLED OUT IN THE LEGEND BY MANUFACTURER, TYPE OR CATALOG NUMBER, SUCH DESIGNATIONS ARE TO ESTABLISH STANDARDS OR DESIRED QUALITY. ACCEPTANCE OR REJECTIONS OF PROPOSED SUBSTITUTIONS SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER.
19. WORK SHALL BE COORDINATED WITH THAT OF OTHER TRADES TO ELIMINATE INTERFERENCES.
20. ELECTRICAL WORK SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL C0MPLETION.
21. WORK SHALL BE GROUNDED IN ACCORDANCE WITH CODE REQUIREMENTS. COMPLETE EQUIPMENT (INSULATED GREEN WIRE) GROUNDING SYSTEM SHALL BE INSTALLED.
22. WIRING METHODS:
    - A. EXTERIOR UNDERGROUND FEEDERS SHALL BE PVC SCHEDULE 80 FOR DIRECT BURIED AND PVC SCHEDULE 40 FOR CONCRETE ENCASED.
    - B. EXTERIOR ABOVE GRADE FEEDERS SHALL BE RGS CONDUIT.
24. FEEDER TAPS WILL NOT BE ALLOWED IN PANELBOARD GUTTERS.
25. PROVIDE AS-BUILT "CADD" DRAWINGS AT THE COMPLETION OF THE PROJECT.
26. ELECTRICAL CONTRACTOR SHALL LABEL ALL ELECTRICAL DEVICES INCLUDING BUT NOT LIMITED TO RECEPTACLES, TEL/DATA OUTLETS, DISCONNECT SWITCHES, PANELBOARDS, THERMAL MOTOR SWITCHES, CONTROL PANELS, JUNCTION BOXES, ETC.
    - A. RECEPTACLES - PANEL NAME AND CIRCUIT DESIGNATION
    - B. DISCONNECTS - PANEL NAME, CIRCUIT DESIGNATION AND EQUIPMENT SERVING.
    - C. THERMAL MOTOR SWITCHES - PANEL NAME, CIRCUIT DESIGNATION AND EQUIPMENT SERVING.
    - D. ENCLOSED CIRCUIT BREAKERS - PANEL NAME, CIRCUIT DESIGNATION AND EQUIPMENT SERVING.
    - E. PANELBOARDS - PANEL NAME, VOLTAGE, AMPERAGE, PHASE AS WELL AS PANEL AND CIRCUIT IT IS FED FROM.
    - F. CONTROL PANEL - PANEL NAME AND CIRCUIT DESIGNATION
    - G. JUNCTION BOXES - PANEL NAME AND CIRCUIT DESIGNATION
27. ADDRESS QUESTIONS TO THE ENGINEER IN WRITING BEFORE AWARD OF CONTRACT, OTHERWISE ENGINEER INTERPERTATION OF MEANING AND INTENT OF DRAWINGS SHALL BE FINAL.

Project:

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Consultants:

Revisions:

No.	Date	Description

COA:

Seal:

ROBERT F. McALEER
ELECTRICAL
No. 48017

Issued For:

BIDDING

Scale: AS NOTED

Date: SEPTEMBER 10TH, 2024
Drawn By: TV
Reviewed By: DM
Approved By: RM

W&S Project No.: ENG23 - 0189
W&S File No.:

Drawing Title:

ELECTRICAL LEGEND,
ABBREVIATIONS AND
GENERAL NOTES

Sheet Number:

E001

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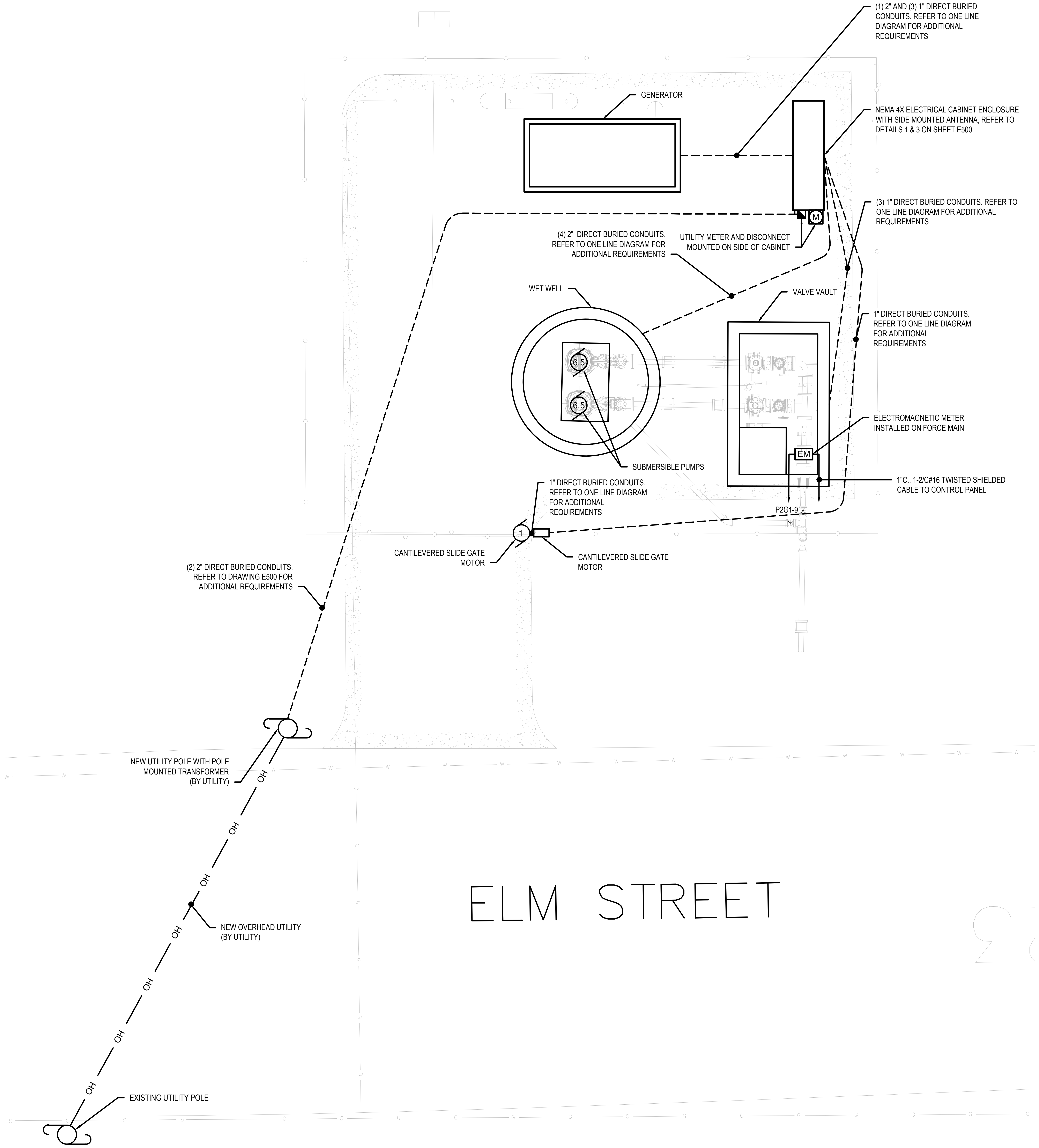

(1) 2" AND (3) 1" DIRECT BURIED CONDUITS. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS
GENERATOR
NEMA 4X ELECTRICAL CABINET ENCLOSURE WITH SIDE MOUNTED ANTENNA, REFER TO DETAILS 1 & 3 ON SHEET E500
M
(3) 1" DIRECT BURIED CONDUITS. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS
(4) 2" DIRECT BURIED CONDUITS. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS
UTILITY METER AND DISCONNECT MOUNTED ON SIDE OF CABINET
WET WELL
VALVE VAULT
1" DIRECT BURIED CONDUITS. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS
6.5
6.5
ELECTROMAGNETIC METER INSTALLED ON FORCE MAIN
EM
SUBMERSIBLE PUMPS
1" DIRECT BURIED CONDUITS. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS
1"C., 1-2/C#16 TWISTED SHIELDED CABLE TO CONTROL PANEL
P2G1-9
1
CANTILEVERED SLIDE GATE MOTOR
CANTILEVERED SLIDE GATE MOTOR
(2) 2" DIRECT BURIED CONDUITS. REFER TO DRAWING E500 FOR ADDITIONAL REQUIREMENTS
NEW UTILITY POLE WITH POLE MOUNTED TRANSFORMER (BY UTILITY)
OH
OH
OH
OH
OH
OH
OH
OH
NEW OVERHEAD UTILITY (BY UTILITY)
ELM STREET
EXISTING UTILITY POLE

1 ELECTRICAL POWER PLAN

SCALE: 1/4" = 1'-0"

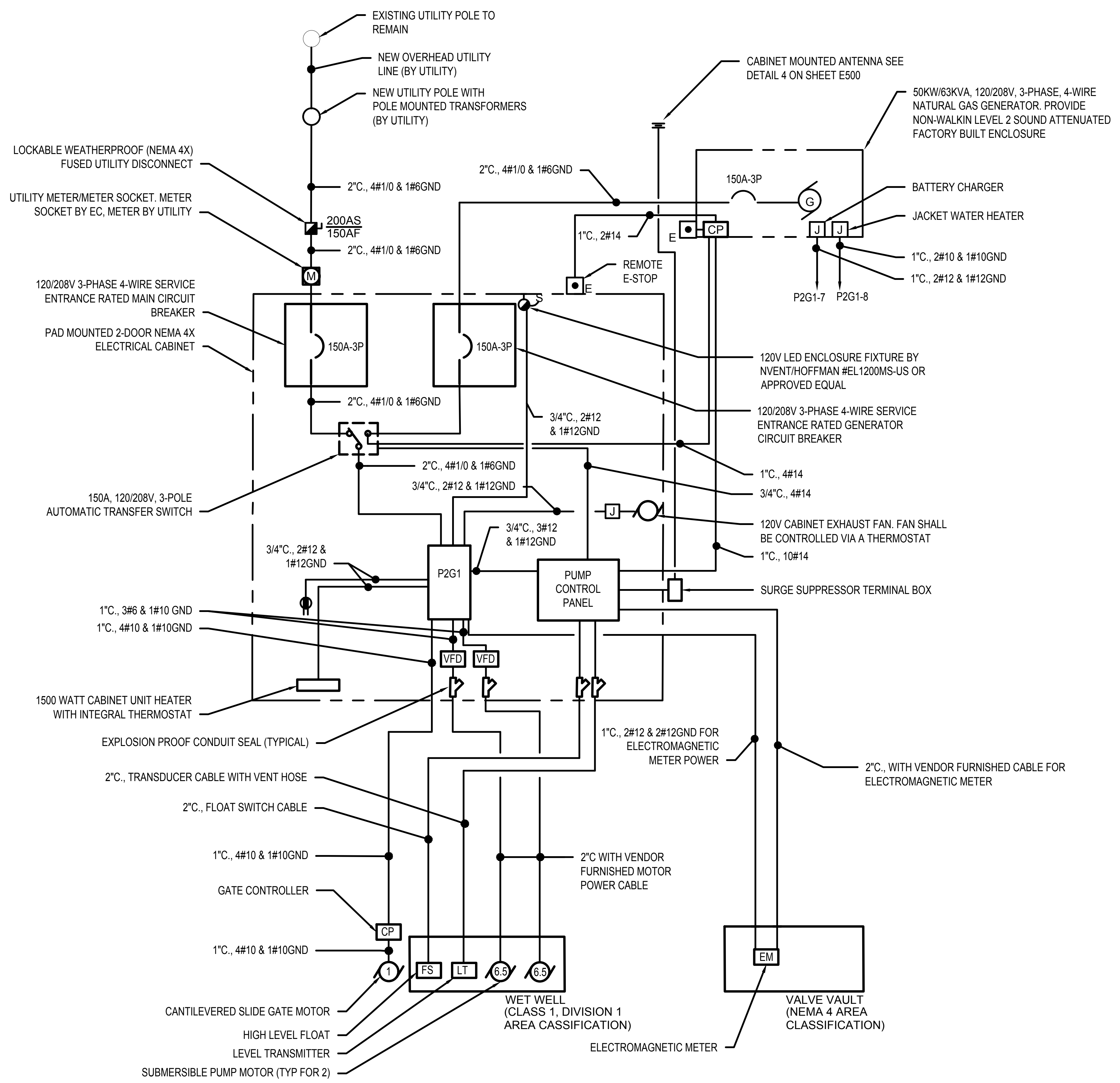
PANELBOARD: P2G1

VOLTS: 120/208 PHASE: 3 WIRE: 4 MOUNTING: SURFACE NEMA 4X AIC: 10,000 AMPS SYMETRICAL

MAINS: 150 MLO/MAIN CIRCUIT BREAKER: 150 MCB 200% NUETRALS: ISOLATED GROUND: FEED THRU LUGS:

		CIRCUIT	LOAD-KVA						CIRCUIT	LOAD-KVA			
POLE	CIRCUIT DESCRIPTION	BREAKER	LTG	RCPT	PROCESS	MISC	POLE	CIRCUIT DESCRIPTION	BREAKER	LTG	RCPT	PROCESS	MISC
1	SUBMERSIBLE PUMP 1	50A-3P			7.46		2	SUBMERSIBLE PUMP 2	50A-3P			7.46	
3							4						
5							6						
7	BATTERY CHARGER	20A-1P				1.00	8	JACKET WATER HEATER	30A-1P				1.5
9	FLOW METER	20A-1P				0.50	10	LIGHTING	20A-1P	0.1			
11	RECEPTACLE	20A-1P		0.18			12	PUMP CONTROL PANEL	20A-1P				1
13	EXHAUST FAN	20A-1P				0.50	14	GATE MOTOR	20A-2P			1.57	
15	UNIT HEATER	20A-1P				1.50	16						
17	GATE CONTROL PANEL	20A-1P				1.00	18	SPARE	20A-1P				
19	SPARE	20A-1P					20	SPARE	20A-1P				
21	SPARE	20A-1P					22	SPARE	20A-1P				
23	SPARE	20A-1P					24	SPARE	20A-1P				
	SUBTOTAL CONNECTION		0.00	0.18	7.46	4.50		SUBTOTAL CONNECTION		0.10	0.00	9.03	2.50
	DEMAND FACTOR		---	---	---	1.00		DEMAND FACTOR		---	---	---	1.00
	TOTAL		0.00	0.00	7.46	4.50		TOTAL		0.10	0.00	9.03	2.50

TOTAL KVA = 23.59 DIVIDED BY: 360 AMPS: 65.53 AMPS * 1.25 = 81.91


EXISTING UTILITY POLE TO REMAIN
NEW OVERHEAD UTILITY LINE (BY UTILITY)
NEW UTILITY POLE WITH POLE MOUNTED TRANSFORMERS (BY UTILITY)
CABINET MOUNTED ANTENNA SEE DETAIL 4 ON SHEET E500
50KW/63KVA, 120/208V, 3-PHASE, 4-WIRE NATURAL GAS GENERATOR. PROVIDE NON-WALKIN LEVEL 2 SOUND ATTENUATED FACTORY BUILT ENCLOSURE
LOCKABLE WEATHERPROOF (NEMA 4X) FUSED UTILITY DISCONNECT
2"C., 4#1/0 & 1#6GND
2"C., 4#1/0 & 1#6GND
150A-3P
G
BATTERY CHARGER
JACKET WATER HEATER
UTILITY METER/METER SOCKET. METER SOCKET BY EC, METER BY UTILITY
200AS
150AF
1"C., 2#14
E
CP
J
J
2"C., 4#1/0 & 1#6GND
REMOTE E-STOP
E
1"C., 2#10 & 1#10GND
1"C., 2#12 & 1#12GND
M
P2G1-7
P2G1-8
120/208V 3-PHASE 4-WIRE SERVICE ENTRANCE RATED MAIN CIRCUIT BREAKER
S
PAD MOUNTED 2-DOOR NEMA 4X ELECTRICAL CABINET
150A-3P
150A-3P
120V LED ENCLOSURE FIXTURE BY NVENT/HOFFMAN #EL1200MS-US OR APPROVED EQUAL
120/208V 3-PHASE 4-WIRE SERVICE ENTRANCE RATED GENERATOR CIRCUIT BREAKER
2"C., 4#1/0 & 1#6GND
3/4"C., 2#12 & 1#12GND
2"C., 4#1/0 & 1#6GND
1"C., 4#14
3/4"C., 2#12 & 1#12GND
3/4"C., 4#14
150A, 120/208V, 3-POLE AUTOMATIC TRANSFER SWITCH
J
120V CABINET EXHAUST FAN. FAN SHALL BE CONTROLLED VIA A THERMOSTAT
3/4"C., 3#12 & 1#12GND
3/4"C., 2#12 & 1#12GND
1"C., 10#14
P2G1
PUMP CONTROL PANEL
SURGE SUPPRESSOR TERMINAL BOX
1"C., 3#6 & 1#10 GND
1"C., 4#10 & 1#10GND
VFD
VFD
1500 WATT CABINET UNIT HEATER WITH INTEGRAL THERMOSTAT
EXPLOSION PROOF CONDUIT SEAL (TYPICAL)
1"C., 2#12 & 2#12GND FOR ELECTROMAGNETIC METER POWER
2"C., WITH VENDOR FURNISHED CABLE FOR ELECTROMAGNETIC METER
2"C., TRANSDUCER CABLE WITH VENT HOSE
2"C., FLOAT SWITCH CABLE
1"C., 4#10 & 1#10GND
2"C WITH VENDOR FURNISHED MOTOR POWER CABLE
GATE CONTROLLER
CP
1"C., 4#10 & 1#10GND
EM
1
FS
LT
6.5
6.5
WET WELL (CLASS 1, DIVISION 1 AREA CASSIFICATION)
VALVE VAULT (NEMA 4 AREA CLASSIFICATION)
CANTILEVERED SLIDE GATE MOTOR
HIGH LEVEL FLOAT
LEVEL TRANSMITTER
SUBMERSIBLE PUMP MOTOR (TYP FOR 2)
ELECTROMAGNETIC METER

2 ONE LINE DIAGRAM

NOT TO SCALE

0' 2' 4' 8'

SCALE: 1/4" = 1'-0"

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Consultants:

Revisions:

No.	Date	Description

COA:

Seal:

ROBERT F. McALEER
ELECTRICAL
No. 48017

Issued For:

BIDDING

Scale: AS NOTED

Date: SEPTEMBER 2024
Drawn By: TV
Reviewed By: DM
Approved By: RM

W&S Project No.: ENG23 - 0189
W&S File No.:

Drawing Title:

ELECTRICAL POWER PLANS

Sheet Number:

E100

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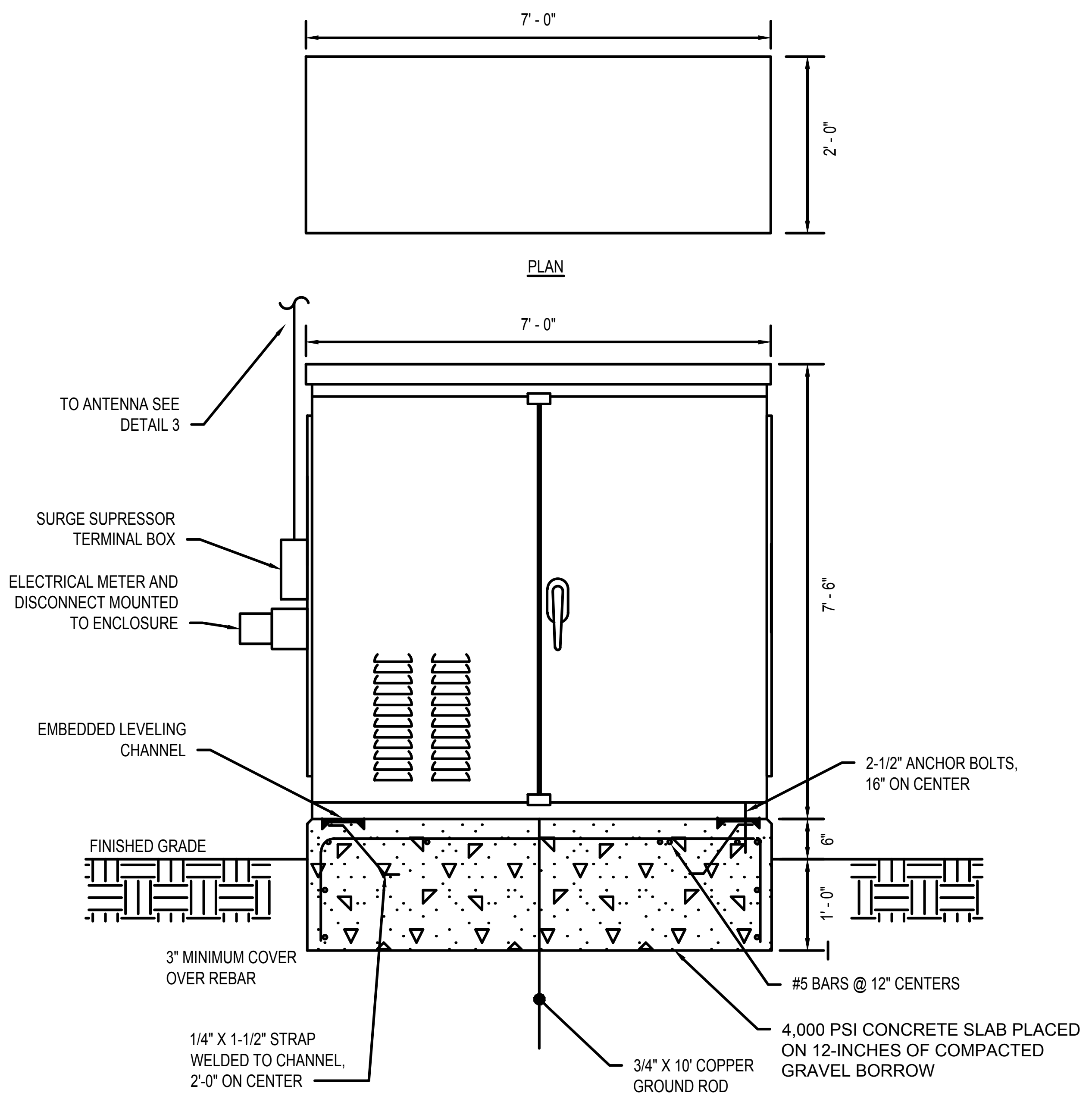
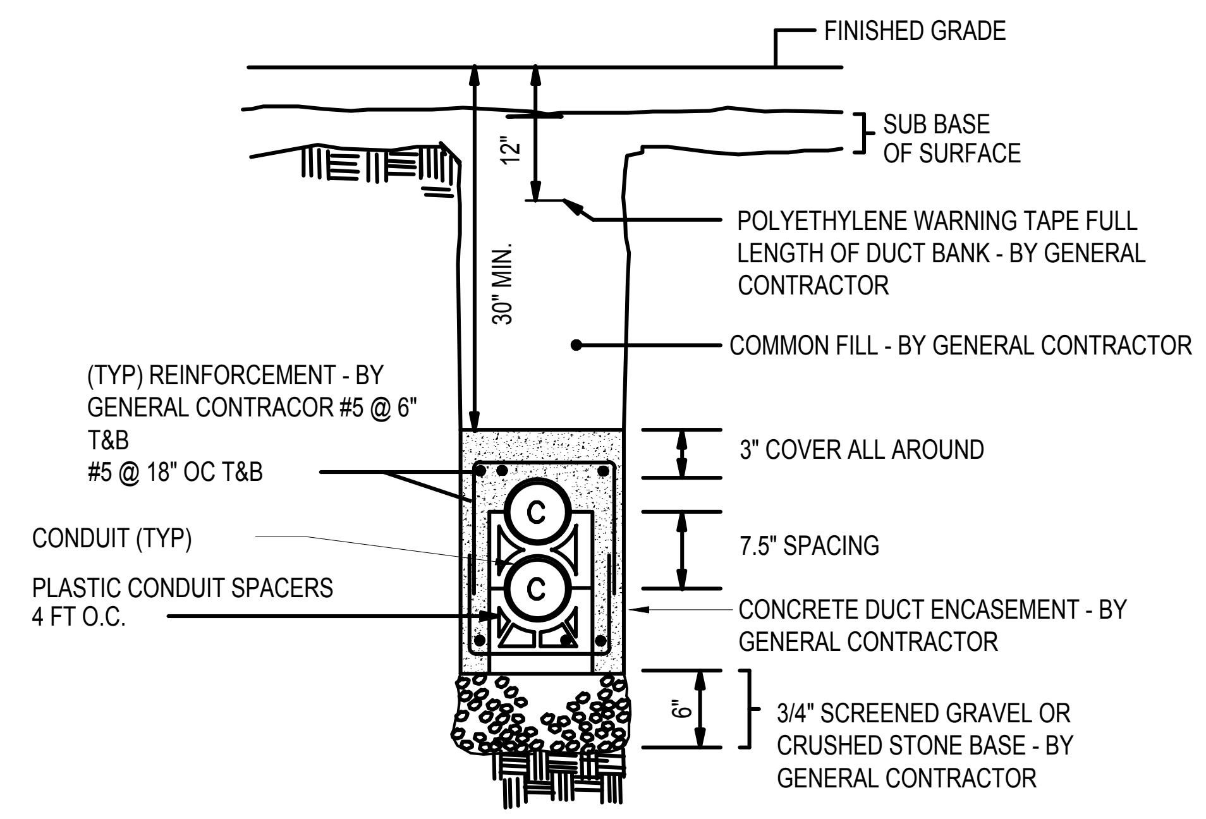

7' - 0"
2' - 0"
PLAN
7' - 0"
TO ANTENNA SEE DETAIL 3
SURGE SUPRESSOR TERMINAL BOX
ELECTRICAL METER AND DISCONNECT MOUNTED TO ENCLOSURE
7' - 6"
EMBEDDED LEVELING CHANNEL
2-1/2" ANCHOR BOLTS, 16" ON CENTER
FINISHED GRADE
6"
1' - 0"
3" MINIMUM COVER OVER REBAR
#5 BARS @ 12" CENTERS
4,000 PSI CONCRETE SLAB PLACED ON 12-INCHES OF COMPACTED GRAVEL BORROW
1/4" X 1-1/2" STRAP WELDED TO CHANNEL, 2'-0" ON CENTER
3/4" X 10' COPPER GROUND ROD
EXTERIOR ELEVATION

NOTES:

1. CONTRACTOR SHALL COORDINATE WITH THE EXACT CABINET SIZE WITH ALL MANUFACTURER EQUIPMENT SIZES PRIOR TO SUBMITTING THE CABINET FOR APPROVAL. PROVIDE A SCALED DRAWING SHOWING ALL EQUIPMENT.

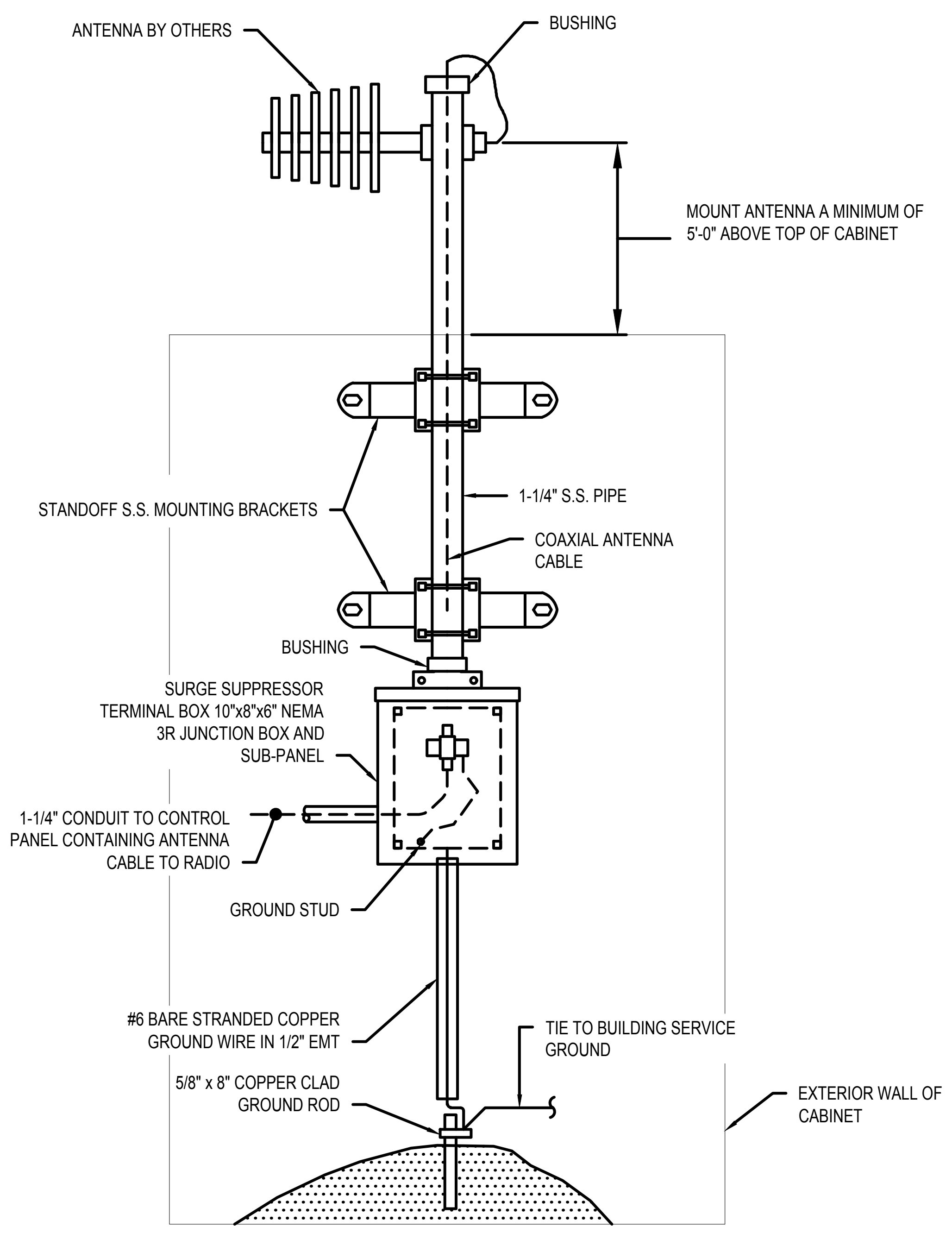
1 PAD MOUNTED 2-DOOR NEMA 4X ELECTRICAL CABINET DETAIL

NOT TO SCALE


FINISHED GRADE
SUB BASE OF SURFACE
12"
30" MIN.
POLYETHYLENE WARNING TAPE FULL LENGTH OF DUCT BANK - BY GENERAL CONTRACTOR
COMMON FILL - BY GENERAL CONTRACTOR
(TYP) REINFORCEMENT - BY GENERAL CONTRACOR #5 @ 6" T&B #5 @ 18" OC T&B
3" COVER ALL AROUND
C
C
CONDUIT (TYP)
7.5" SPACING
PLASTIC CONDUIT SPACERS 4 FT O.C.
CONCRETE DUCT ENCASEMENT - BY GENERAL CONTRACTOR
6"
3/4" SCREENED GRAVEL OR CRUSHED STONE BASE - BY GENERAL CONTRACTOR

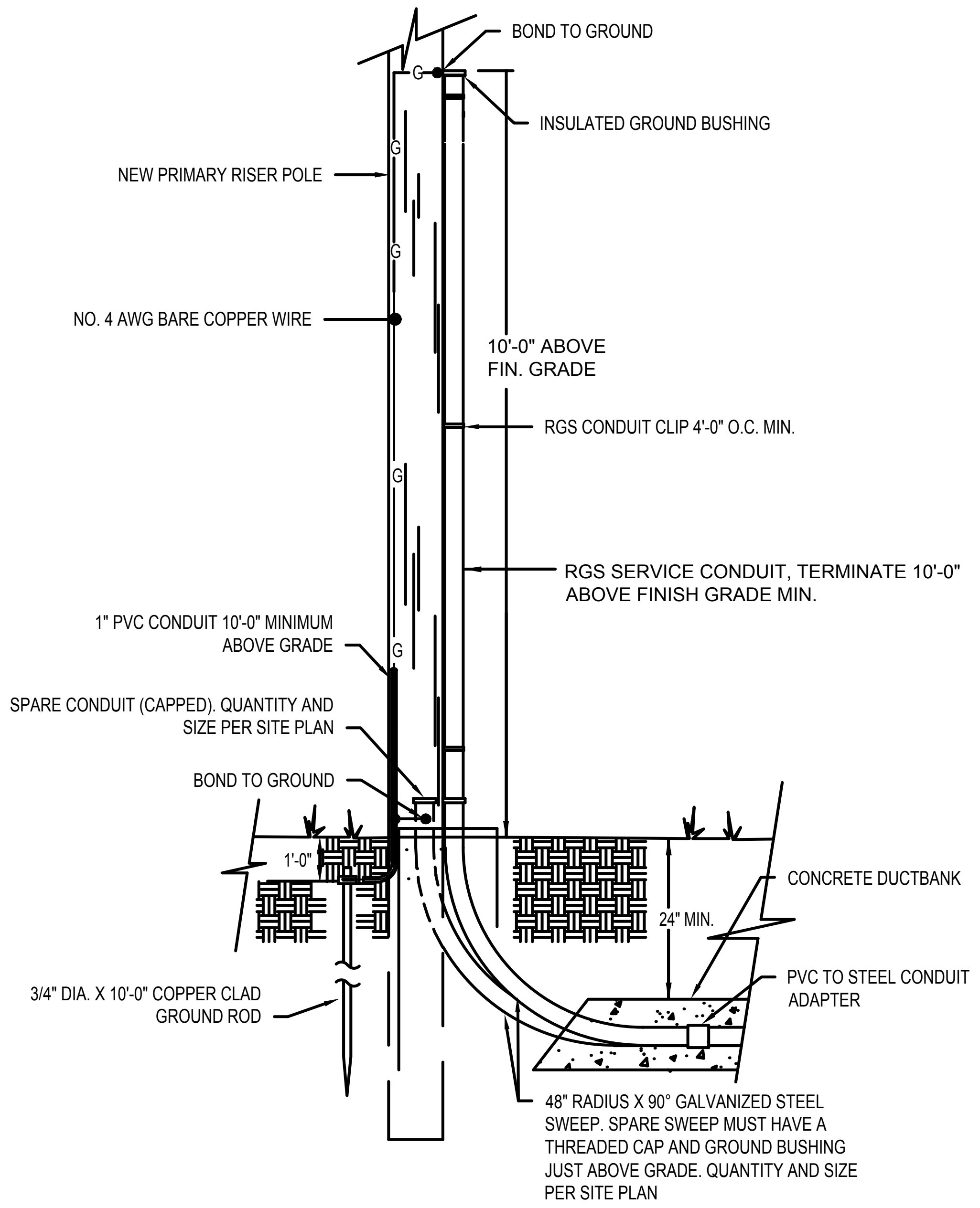
2 TYPICAL CONCRETE ENCASED DUCTBANK

N.T.S


ANTENNA BY OTHERS
BUSHING
MOUNT ANTENNA A MINIMUM OF 5'-0" ABOVE TOP OF CABINET
STANDOFF S.S. MOUNTING BRACKETS
1-1/4" S.S. PIPE
COAXIAL ANTENNA CABLE
BUSHING
SURGE SUPPRESSOR TERMINAL BOX 10"x8"x6" NEMA 3R JUNCTION BOX AND SUB-PANEL
1-1/4" CONDUIT TO CONTROL PANEL CONTAINING ANTENNA CABLE TO RADIO
GROUND STUD
#6 BARE STRANDED COPPER GROUND WIRE IN 1/2" EMT
TIE TO BUILDING SERVICE GROUND
5/8" x 8" COPPER CLAD GROUND ROD
EXTERIOR WALL OF CABINET

3 CABINET MOUNTED ANTENNA DETAIL

N.T.S


BOND TO GROUND
INSULATED GROUND BUSHING
NEW PRIMARY RISER POLE
G
NO. 4 AWG BARE COPPER WIRE
10'-0" ABOVE FIN. GRADE
RGS CONDUIT CLIP 4'-0" O.C. MIN.
RGS SERVICE CONDUIT, TERMINATE 10'-0" ABOVE FINISH GRADE MIN.
1" PVC CONDUIT 10'-0" MINIMUM ABOVE GRADE
SPARE CONDUIT (CAPPED). QUANTITY AND SIZE PER SITE PLAN
BOND TO GROUND
1'-0"
CONCRETE DUCTBANK
24" MIN.
PVC TO STEEL CONDUIT ADAPTER
3/4" DIA. X 10'-0" COPPER CLAD GROUND ROD
48" RADIUS X 90° GALVANIZED STEEL SWEEP. SPARE SWEEP MUST HAVE A THREADED CAP AND GROUND BUSHING JUST ABOVE GRADE. QUANTITY AND SIZE PER SITE PLAN

4 TYPICAL RISER POLE DETAIL

NOT TO SCALE

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COMMONWEALTH OF MASSACHUSETTS
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REGISTERED PROFESSIONAL ENGINEER

Issued For:

BIDDING

Scale: AS NOTED

Date: SEPTEMBER 10TH, 2024
Drawn By: TV
Reviewed By: DM
Approved By: RM

W&S Project No.: ENG23 - 0189
W&S File No.:

Drawing Title:

ELECTRICAL DETAILS

Sheet Number:

E500